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Industrial FINISHING

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...tributed monthly to finishing ...m and paint shop foremen, ...duction superintendents, ...ists, purchasing agents and ...pany executives of metal-...king, woodworking and mis-...ellaneous industrial plants ...ere production cleaning and ...shing are major operations in ...rts and products manufacture.

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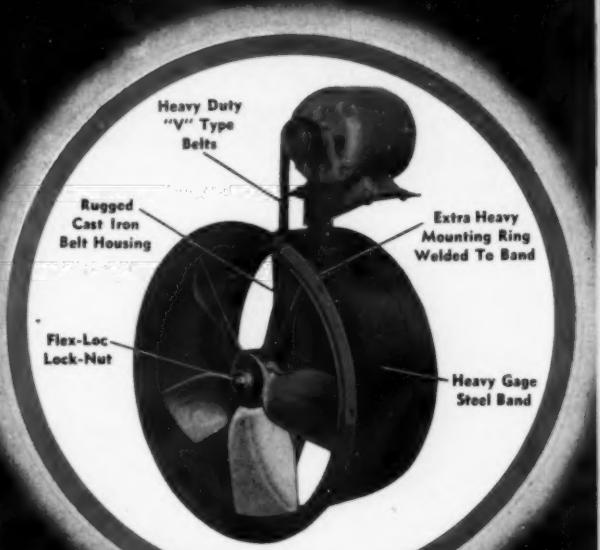
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M & E Spray Finishing Engineers have the answer to your finishing problem — a wealth of experience and a full line of modern Spray Equipment:

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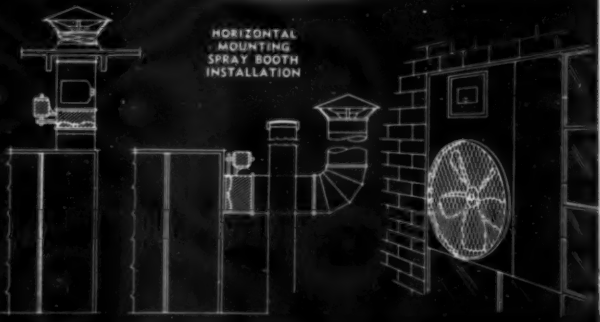

"ALWAYS IN STEP WITH THE FORWARD STRIDES OF THE FINISHING INDUSTRY"

M&E MANUFACTURING COMPANY

Engineers • PAINT SPRAY FINISHING SYSTEMS • Designers

INDIANAPOLIS 5, INDIANA

Industry's Cost of Living. People often forget that industry's cost of living has risen just as the individuals who make up industry. The same high labor and material costs that make a pre-war $5000 house now cost $10,000, make a pre-war $50,000 plant cost $100,000 or perhaps $200,000 today. In many cases the same ratio of increase applies to equipment. However new and larger plants with new and better equipment are needed to increase production and promote employment. Those who advocate lower corporate profits should give these things serious and thoughtful consideration.

* * *

It Costs Money. An executive has written to remind us that:

1) It takes an average of about $9000 to provide employment for each person in industry.

2) This money must come from some prosperous citizens who have surplus funds to invest.

3) The present tax laws don't leave sufficient capital to supply these funds.

4) Workers of the country must increase their output if there are to be more of the good things of life available to raise their standards of living.

5) The larger the output per man the bigger the investment required for equipment for him to operate and

6) Increasing wages without increasing output, increases prices without increasing purchasing power.

A well-informed public will support an enlightened industrial leadership in building up our economy so that we will be able to meet international obligations while at the same time promoting and protecting the interests of our own people.

* * *

Rigidized Metal. A new, nearly soundless metal lines the walls of America's newest and most advanced telephone booths in the Pepsi-Cola Center at Broadway and 47th St., in New York City. The new material is called Rigidized Metal—a product of a patented process of the Rigid-Tex Corp., Buffalo—which gives ordinary stainless steel, or sheets of other metals, an unusual sound-deadening quality especially suited to service in telephone booths and similar applications in which acoustics are of special importance.

The Rigidizing process produces a clear-through geometric pattern in sheet metals of any kind, which displaces the plane of the metal in such a way as to produce uniform stiffness or rigidity in all directions. At the same time, both surfaces of the metal acquire a pleasing texture which admirably conceals scratches, minor dents and fingermarks, and positively defies the "doodling" of amateur artists and memo writers. The advantages of these characteristics for phone booths and other public services can plainly be seen.

The important merit of Rigidized

(Continued on page 10)

Pardon me, but your "finish" is showing!

Why not dress up your furniture with that "New Look"?

- DuBAR BLEACH
- FASTAIN
- FULL-FILL
- WOOD-SEAL
- VINDOLAC

"From the start — consider the finish"

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FILMITE PIGMENTED OR CLEAR
A protective coating that prevents paint overspray from sticking to dry areas of paint spray booths. Simply spray or brush on. For clean-up, peel off or wash off

KLARIFIANT
Two action water wash compound for spray booth water curtains.
Eliminates:
1. Plugged nozzles.
2. Water breaks.
3. Clogged lines and pumps.
4. Sludge in reservoir
5. Loss of pressure

FERRO-TERJ
For periodic cleaning of wet spray booths. Cuts deposits from tank, waterfall sheet, pump lines and nozzles, quickly, cleanly, safely for periodic purging.

Let DU BOIS take spray booth "headaches" from you. Hundreds of plants have eliminated their booth problems with DU BOIS. Convince yourself by writing for complete information.

Address: Industrial Division

The Du Bois Company
1120 WEST FRONT STREET
CINCINNATI 3, OHIO

REPRESENTATIVES EVERYWHERE
WAREHOUSES IN PRINCIPAL CITIES

Metal is its exceptional sound-deadening characteristics. For this service, flat sheets of any metal are first perforated with a fine mesh of small holes spaced uniformly in all directions. The metal is then Rigidized with a special Rigidized Metal pattern which coincides with a high percentage of the perforations and creates a series of perforated deflections and projections in the surface of the sheet.

* * *

More Absorbent Cloth. The U. S. Rubber Co. has developed a new and more absorbent towel. It was discovered that asbestos is capable of absorbing three to five times its weight in water, and when combined with cotton, produces an ideal cloth for drying and polishing. It is said to leave little if any lint on the surface wiped.

* * *

Decorated Window Shades for every room have made their appearance. Departing from the traditional green and tans, the new shades are in pastel colors with screen-painted designs. For the nursery there are Mother Goose characters; for the childrens' room, a circus pattern with elephants and clowns; flower designs for bedrooms; and for living and dining rooms, conventional and scenic patterns.

This means more demand for silk-screen processing and besides it's such a good idea, the wonder is someone hasn't thought of it before.

* * *

Safety Plastic. The Princeton laboratory, working with the U. S. Navy Bureau and the Army Signal Corps, has developed a glass cloth laminate which should reduce fire hazard and electrical failures, especially in marine installations. This material has

(Continued on page 126)

Spray It On — Peel It Off

SAVE TIME
SAVE MONEY

PEEL SPRAY BOOTHS CLEAN—IN MINUTES

LIQUID ENVELOPE
PEELABLE PLASTIC

SPRAY-BOOTH COATING

Gives You All These Advantages

1. Sprays on fast—with regular equipment. 2. Dries quickly —film non-combustible. 3. Peels in big sheets—as easy as peeling a banana — no matter how heavy or light the accumulated spray dust. 4. Eliminates paper, grease, hand scraping, fire-hazard. 5. White color improves booth illumination. 6. Concentrated for economy—reduce with lacquer thinner. 7. Good coverage at low cost. Attractive price on drum orders.

Note: "Liquid Envelope" is being used in hundreds of large and small plants. It is a product of America's longest and broadest experience in making *peelable* plastic films. For assured satisfaction, be sure to get original and genuine "LIQUID ENVELOPE" Spray Booth Coating.

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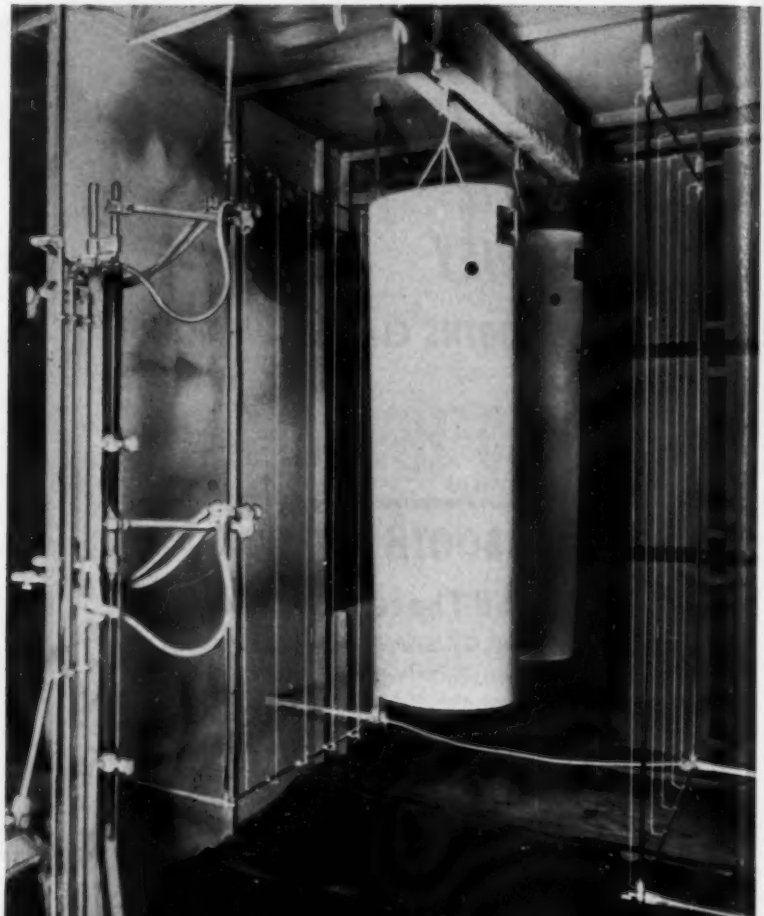
Take Advantage of this TEST-SAMPLE OFFER

5-gallon can shipped prepaid on a money-back guarantee $17.50. Attractive low price on quantity re-orders makes "LIQUID ENVELOPE" your best buy.



Water heater jackets, cylindrical in shape, moving through electrostatic zone wherein they are electrostatically coated. Photograph courtesy of Ransburg Electro-Coating Corporation.

Electrostatic Spraying
SAVES PAINT AND LABOR

A TYPICAL setup for automatically spray painting water heater jackets in an electrostatic field is pictured on the opposite page. The cylindrical jackets hang from an overhead chain conveyor and are moving toward the observer. On this application two automatic spray guns, mounted on a vertical rod which moves up and down at the left, introduce atomized paint into the electrostatic field.

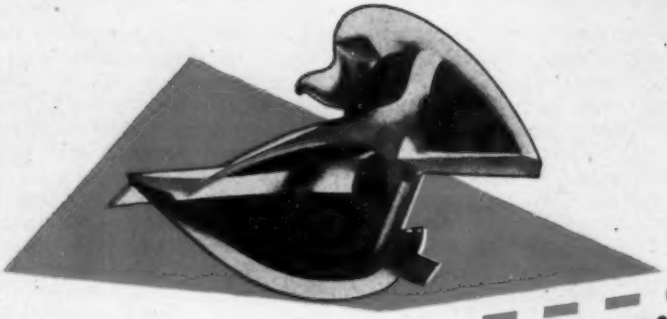
As the cylindrical shells approach from the background, they rotate slowly and move between two sets of electrodes (parallel vertical wires) which are electrically charged to create an electrostatic field of high *negative* intensitive. At the same time the conveyor acts as a *positive* ground for the metal shells being coated. The principle of the process is the familiar polarity (positive and negative) wherein like repels like, while opposites attract.

As the coating material is atomized and sprayed into the electrostatic field at low pressure the paint particles assume the same negative high intensity charge as the discharge electrodes. As a result, the paint, negatively charged, is repelled from the electrodes and is attracted to the heater shells coming through the conveyor, since these metal surfaces are the nearest objects of opposite (positive) polarity. In other words, the atomized paint sprayed into the electrostatic zone becomes electrically charged (negatively) and, as the heater jackets of opposite polarity move through this fog of charged paint particles suspended in the air, the charged paint particles fly to the surfaces of opposite polarity, which are the heater jackets. The coating deposited in this way is remarkably uniform in thickness.

Naturally, there is a minimum of overspray in an electrostatic setup. Practically all of the paint sprayed into the electrostatic zone is effectively utilized to coat the products that are exposed to it while they travel through by conveyor.

The process itself is entirely automatic, although generally a part-time attendant is required to check the controls and see that everything is operating satisfactorily. Each electrostatic spray unit is individually engineered for a specific operation, but every one follows a more or less general pattern. A large variety of parts and products can be safely and economically painted by electrostatic spraying. [END]

GEORGE KOCH SONS, INC.



BOTTLENECK

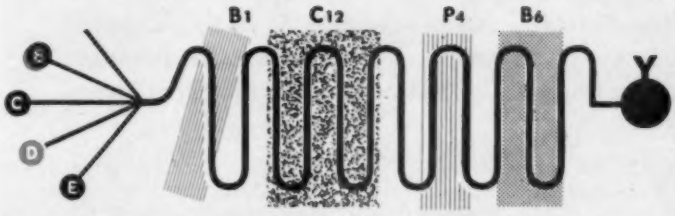
If you're wondering what the peculiar design shown above represents, we'll relieve your curiosity immediately. It's a modernistic graph of the flow of goods in a finishing department where disorganization, improper planning, or unscientific layout has produced snarls and slowdowns with the inevitable bottleneck that makes everybody unhappy — including your customers.

Bottlenecks cost money, too, and very often are the cause of labor trouble and inferior products.

So let's take a look at a brighter side of the picture. If you like graphs, you should absolutely drool over the little beauty we show on the opposite page.

COMPLETE FINISHING SYSTEMS

GEORGE KOCH SONS, INC.



PRODUCTION

Anyone can see with half an eye that this is a nice, smooth flowing graph. It is an engineer's "picture" of the flow of products in a typical "KOCH ENGINEERED" finishing department. The different products (ABCDE) may take the same ($B_1C_{12}P_4B_6$) or different (B_1 B_6) finishing operations, but they nevertheless slide along on a timed schedule which gets them to point Y on the beam. No bottlenecks! KOCH does the complete job for you — from original layout to final erection and tested operation — or any part of the job you want done.

Write for Circular A-2

GEORGE KOCH SONS, Inc.
EVANSVILLE 4 INDIANA

COMPLETE FINISHING SYSTEMS

Production Finishing

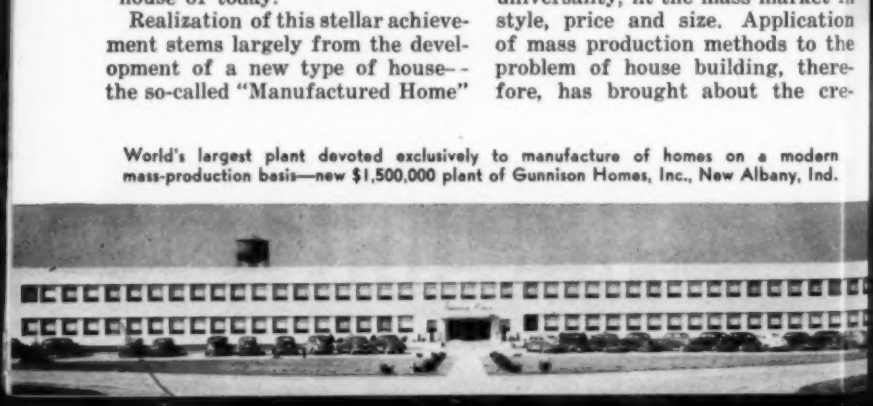
Progressive operation sequence plus continuous time-flow principle equals quantity output of quality homes at low cost at Gunnison Homes, Inc., where exterior and interior product-finishing problems have been solved by a simplified streamlined system, utilizing modern methods, machines and materials which are geared for mass production of houses.

ONE OF America's few remaining product citadels built on old-fashioned handcraft techniques of manufacture—the home—is now being successfully stormed and conquered by mass production methods, promising to mark another major milestone in the nation's social and economic progress. What once was the dream of visionaries—the "home of tomorrow," a complete house, factory-made at high-speed, with precision and economy, and "packaged" ready for delivery—is steadily becoming, in more and more communities across the country, the "house of today."

Realization of this stellar achievement stems largely from the development of a new type of house—the so-called "Manufactured Home"—by Foster Gunnison, a pioneer in prefabrication, who today heads the nation's number one producer of such houses, Gunnison Homes, Inc., of New Albany, Ind., a subsidiary of the United States Steel Corporation since 1944.

Here, the combination of bold "imagineering" in product design and a thorough adaptation and conveyorization of assembly-line techniques as conceived and applied by the "Henry Ford of Housing" in a superbly-equipped $1,500,000 plant have set new standards of productive efficiency in the manufacture of homes which, thanks to their unique universality, fit the mass market in style, price and size. Application of mass production methods to the problem of house building, therefore, has brought about the cre-

World's largest plant devoted exclusively to manufacture of homes on a modern mass-production basis—new $1,500,000 plant of Gunnison Homes, Inc., New Albany, Ind.



...of Gunnison Homes

By ARTHUR P. SCHULZE

Shown in this view of Gunnison's new plant, providing a manufacturing area of 400,000-sq.ft., is part of the 1000-ft. conveyor line which moves window panels, door panels and other home "parts" through the finishing operation and drying ovens.

ation of a home for Mr. and Mrs. America that has definitely shown itself to be of excellent quality and lower in cost than a comparable type residence produced by conventional, age-old construction techniques.

Through continuous timed-flow, conveyorized production, houses roll off the Gunnison assembly line in virtually the same manner as do automobiles, refrigerators, ranges, electric motors and countless other products that are turned out in

high volume and at low cost. At Gunnison's a complete house is produced in 25 minutes. This manufacturing cycle from raw material to finished product is expected to be cut to 15 minutes through the increased efficiencies resulting from greater production as time goes on. The plant is laid out with the central production area fed by supplies stored on each side adjacent to various fabricating departments.

Standardized Sections of Homes are Interchangeable

Floors, walls, ceilings and roofs for each of the eight different Gunnison homes are all made in standardized, interchangeable, 4-ft. wide panels, which are fabricated, insulated and completely finished in the plant. There are only 28 different types of wall panels. From these the designers make 11 right-handed and 11 left-handed floor plans, or 22 all told. Total number of panel types made, including those for floors, ceilings, gable-ends and roofs, is only 43.

Waterproof, soilproof finishes applied on the interior eliminates the need of refinishing. Use of a specially-designed primer for exterior surfaces simplifies application of the final paint coat.

Made of fire-resistant materials, insulated against cold and heat, equipped with modern conveniences, embodying designs along traditional lines, each Gunnison home is complete when it comes off the assembly line. No two of the basic eight homes need ever have the same appearance. Individuality is achieved through ingenious provisions for variety in form, detail and color.

Plant Is All Conveyorized; a Home Every 25 Minutes

The Gunnison factory, the prefab industry's largest plant, is conveyorized from "stem to stern" in the interests of real efficiency and economy All manufacturing operations, including surface preparation, finishing and drying, are subdivided into simple, repetitive tasks; materials are transported from one work station to the next by motor-driven chain conveyors, the speeds of which are synchronized so that all the panels for a complete house arrive at the shipping dock every 25 minutes. Finishing materials, methods and machines—all of the latest type—are neatly integrated into a streamlined system that provides smooth-flowing production in the economical application of quality finishes.

Panel production starts with lumber and hardwood veneers. The lumber passes through machines where it is sawed and planed to the required dimensions; then it is assembled into frames. The veneers, which have been converted into waterproof laminated wood, are bonded to both sides of the frame, thus making a complete panel.

The frames are laid out on specially-designed clamping jigs in certain basic patterns, choice of which differs, depending on the ultimate use of frames and solid panels, or as panels containing doors and windows. After being fastened together lightly, the assembly travels on a continuous conveyor to receive an adhesive coating, after which insulation is inserted. This chemically-treated rock wool bat in-

Finished wall panels roll off the conveyorized production line every 25 minutes.

sulation is sealed into all panels, including floors, exterior walls, ceiling and even partitions between rooms.

Ply Panels Glued to Frames; Machine Operations

Then interior and exterior coverings of phenolic bonded plywood are applied. The plywood is then bonded to the frame with phenolic resin in a hot press, providing a single structure of great strength.

After cooling, complete panels (laminated sheets bonded to the panel framework) are carried to a special power saw which trims them to exact width and cuts spline grooves. From this machine panels

go to a multiple drill that bores all necessary holes in one stroke. Panels are then hung on a 60-ft. conveyor that travels at the rate of 16-ft. per minute. On this line numerous operations are performed —edges are rounded, treated and stained; minor nail holes are "doped", and backboard spacer blocks applied. The panels are then transferred to another conveyor so that the same operations can be performed on the opposite side of each panel.

Beginning of Finishing Operations on Sections

Now comes sizing, sanding, cleaning and finishing, each of which is executed as the panel travels through various work stations on a power-driven endless monorail conveyor that runs at the rate of 20-ft. per minute. Panels of varying thickness (⅝ and 2-in.) are held in suspension with clamps specially devised for this purpose by Gunnison production engineers.

Following the removal of fingermarks and surface abrasion, panels go through a series of four finishing and drying operations. Both interior and exterior surfaces have their own separate finishing systems, which are combined into one completely conveyorized set-up.

Interiors, Two Lacquer Coats; Exteriors, Two Prime Coats

Interior surfaces of panels are finished by a two-coat lacquer system, employing tinted waterproof lacquer which is pumped directly from the container to the point of application. Exteriors receive a double coating of "Pre Fab Exterior Shop Coat White," a special type primer developed expressly for this particular operation to meet Gunnison's exacting production requirements and time-flow schedule.

Panel exteriors get their initial prime coat in the first spray booth, a waterwash-type unit. Then interior surfaces are lacquer-sprayed in the second booth, after which panels are force-dried at 120° F., in a steam-heated, automatically-controlled oven 100-ft. long. The conveyor, following a U-turn in the oven, thus carries the panels a distance of 200-ft. during this drying process.

Oven-dried panels are sanded manually to smooth their surfaces and prepare them for application of the following finishing coats: Lacquer for interior surfaces, and primer for exteriors. These coatings are applied in separate spray booths. Panels are again dried.

Oven Drying Followed by Waxing and Polishing

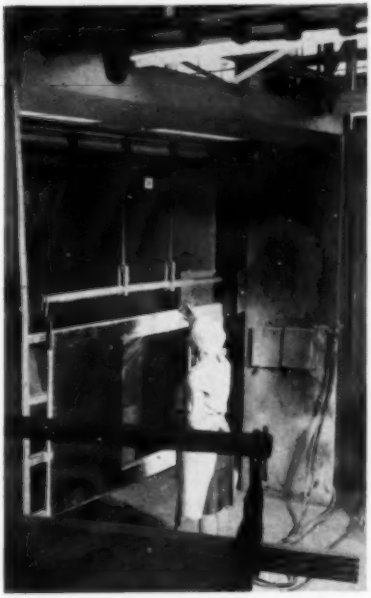
Polishing and waxing complete the finishing of panel interior surfaces, after which the panels then pass on for final inspection and for the installation of glazed windows and screens, doors and hardware, including bronze weather-stripping for all outside doors. Exterior surfaces of panels—given two primer coats before shipment from the factory—receive their final paint coating in the field after the home is erected by the local Gunnison dealer.

An additional highlight worthy of note in connection with the primer material used for panel exteriors is the fact that its development culminated from years of

painstaking research and numerous carefully controlled accelerated and normal weathering tests conducted by its originator. The material may well be termed a "productioneered" paint in that it is specifically designed to meet certain stringent requirements governing the mass production technique of Gunnison homes.

The Exterior Primer Was Specially Formulated

Experience acquired in the development of this material, a specially formulated exterior primer with a synthetic resin base, clearly demonstrated that to be successfully used, and at a cost within prescribed limits of economical application, it must: 1) dry rapidly without impairing weather-resistance qualities; 2) be sufficiently durable to withstand prolonged outdoor exposure, and 3) effectively defy weathering so as to save subsequent recoating, an operation which otherwise would be necessary. This latter is essential because in may cases, due to adverse weather, there may be a lapse of from three to six months from the time of erecting until the house is painted.

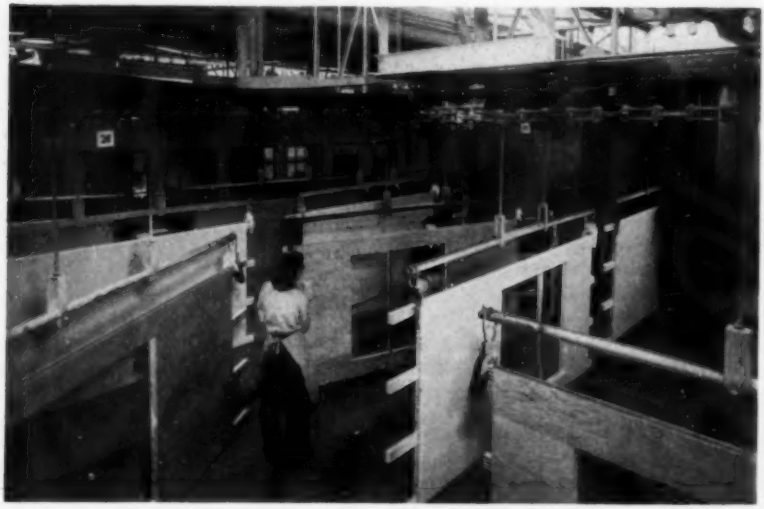


One of the waterwash spray booths where panel exteriors are spray painted with Pre Fab Shop Coat White, a paint designed and developed for conveyorized finishing work.

Designed to fit Gunnison's specific continuous timed-flow production schedule, this material is force-dried at approximately 120° F. in 20 minutes for handling, or air-dried in 45 minutes for handling. By means of conventional pressure tanks, it is mixed, agitated and flowed to the spray booth. Pressure of 100-lbs. is available, but it is regulated to provide a material flow at the rate of 50-lbs. at the spray gun nozzle.

The material, moreover, is suitable to take any premium-quality conventional-type exterior house paint. Of still further interest is the fact that on two occasions the formulation was revised by the paint company's laboratory to meet demands for accelerated output when the conveyor speed was stepped up.

While panels are being processed and painted as they are conveyed step by step from raw material to completed product, all other parts of the home likewise are moving to the shipping platform. Like the



Four stages in finishing are shown in this photograph of the drying oven: 1) Finished panels at right are entering the oven; 2) Operators are sanding the sealer preparatory to application of second lacquer coat on dried panels shown emerging from oven; 3) On third line at far left, panels have received their second finish coat and are entering the oven; 4) Fourth line at extreme left shows final finished panels coming from oven.

wall panel production line, flooring and ceiling panels roll off their own respective, conveyorized lines, arriving at the same destination within the same time allowance. Following the same fabricating operations, floor paneling is sprayed with a clear floor lacquer of long wearability and then dried in a 25-ft. infra-red oven at approximately 100° F. for three minutes to control humidity and hasten drying. Ceiling plywood is roller-coated on a sub-assembly line with the first lacquer seal coat, then infra-red-dried at the same temperature and for the same period as the flooring. Joined to the ceiling frame, the complete panel is then spray-finished with clear lacquer.

Meanwhile, interior trim is milled, finished and packaged. Heating equipment is completely assembled and tested, and the various cabinets and items of architectural treatment are prepared for shipment by rail or truck.

Eventually, it is hoped to reduce the factory assembly time of a complete Gunnison home from 25 minutes to 15 minutes. The company, with this objective in mind, is carrying forward an extensive research program to investigate and evaluate for its purposes the suitability of various materials.

eliminates unnecessary expense

During a call at a large plant, a Lowe Brothers "Finishing Specialist" spotted a rust problem on castings. Foresightedness and basic finishing knowledge enabled him to quickly suggest the solution.

Semi-finished product parts, after being primed, were temporarily stored outside. Frequently rust formed on these parts. Before castings could be completely finished, it was necessary to wire brush and reprime rusty surfaces.

Lowe Brothers "Finishing Specialist" checked the entire spraying operation, made a few minor corrections—then suggested an improved lighting system. Both reconditioning and repriming expenses were eliminated by this *increased illumination*—which enabled the spray man to efficiently put an *even coat* over each casting surface and thereby prevent rusting.

This experience illustrates how the knowledge of a Lowe Brothers "Finishing Specialist" helps him solve finishing problems that may lead to lower finishing costs.

Why not have a Lowe Brothers "Finishing Specialist" study *your* finishing methods for possible improvement? No cost or obligation. Write The Lowe Brothers Company, Dayton, Ohio.

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FINISH IT WITH DIM
COVER THE EARTH
SHERWIN-WILLIAMS
INDUSTRIAL FINISHES
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Give your
TWO COLORS!
ONE OPERATION!
1/3 LESS COST
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product HAMMERED FINISHES of unsurpassed Sales Appeal

Do you make office equipment, radios, heating and ventilating units? *Whatever* you produce, it can use a high quality, rugged, baked hammered finish of unsurpassed realistic depth . . . and with DIMENSO you get *2 colors* sprayed simultaneously, *from one gun,* at *⅓ less cost!*

There's not another finish like it! Not another finish works so easily . . . coats your product with beautiful, 3-dimensional *hammered finishes*—in one operation—that are protective, colorful . . . finishes that will help *sell on sight!*

And you can *register your color selections* with Sherwin-Williams so no one else making the same type of product can use 'em. Have representative call. No obligation at all! The Sherwin-Williams Co., Industrial Division, Cleveland 1, Ohio. (Export Division, Newark, N. J.)

Another Product of SHERWIN-WILLIAMS INDUSTRIAL RESEARCH

INDUSTRIAL FINISHES

Handling Rush Jobs in a Custom Shop

Expert metal finisher explains how and why rush jobs show up, and discloses his special technique for handling them to get a smooth quick-dry coating that will stand critical inspection.

By G. A. CONRAD

IN MOST industries it is perhaps unfortunate that the finishing department occupies a position midway between fabrication and assembly. Because of this unenviable position it seems that the finishers are destined to be always working under pressure. Engineers and designers can dawdle interminably. Parts may lie forgotten in the machine shop, foundry or sheet metal shop; but when they reach the paint shop, time is running short. Production must move rapidly.

Much of this condition is due to the difficulty of storing finished parts. Before the finish is applied, parts can be stacked or nested without any particular protection, thereby conserving space. After finishing it is a different story; many plants just don't have the room. There is a tendency, therefore, to delay painting until the products are actually needed.

Then there are the inevitable changes in plans or specifications. Take for instance, a typical day: The painting supervisor is breathing easy; a check on his finished stock with the assembly schedule shows a favorable balance; and he begins to contemplate getting one or two maintenance or alteration jobs underway. Then along comes an order to change the schedule, substituting a model for which there are probably no cases finished. These things account for the air of desperation which seems to pervade so many paint shops.

Even in the job shops, this pressure is apparent on the sprayers. The manufacturer who jobs out part or all of his work, has even less leeway in his time margin than the completely self-sufficient organization. Work delayed by the finishing contractor may make all of his assemblers idle. Meeting deadlines is part of the sprayer's daily life, and in time he comes to regard it as normal and does not mind it too much.

Special Finishing Job Wanted in a Hurry

It is the last minute rush job which is the bane of the finisher's existence. You all know how it works. About two o'clock in the afternoon, when you have every man and station busy, in walks some customer with an assortment

of parts which, he explains, are for a special order. You check the specifications. Naturally, they never include anything you are running at the itme.

The bearer of these tidings informs you that a truck is coming at six o'clock to pick up the completed unit, or perhaps one of the salesmen is taking it with him. Anyhow, you had better get it out, and quick. It's funny how the outsider seems to regard a spray gun as some sort of magic wand; an operator waves it in front of the work and presto! The job is finished.

Your first temptation is to throw the stuff out the window. Your second thought is to load up a couple of spray-guns, pour the paint on and give it a fast bake; or, if it's an air-dry job, hand it back wet. However, if you are a good business man you will do neither. The shorter the time allowed, the more reason you must take your time. There are good logical reasons why you must restrain any impatience, keep a cool head and pace the job deliberately.

Why Those Special Jobs Are So Important

In the first place, these special jobs are usually important. Since each special job differs from the standard stock, it is bound to be noticeable. Perhaps it is the forerunner of a new line, to be examined by salesmen and checked by designers who, caring little for excuses, will certainly make critical remarks about a shabby finish. As we all know, it is the hurry-up job that has a habit of being disappointing. Something always slips up—a run or a thin spot; perhaps a finger mark from handling a piece too wet. This is one reason for taking it easy. Haste makes waste. Keep a cool head.

Now let's consider the proper curing or drying of the paint—still having in mind getting the job out on time. It is one thing to get the required number of coats on a surface, to give it some semblance of dryness, and then pass the responsibility on to someone else. It is an entirely different matter to put on a finish that is smooth, hard and tough—able to stand the abuse of assembling and packing. This is the kind of finish that even a rush job merits, and this is where proper pacing comes in.

Thin Coats Dry Faster Than Heavy Coats

It doesn't matter what material is used—whether lacquer, baked enamel or even air-drying synthetics — the curing process can be shortened and a satisfactory hardness can be achieved by proper application of the material. Granted, the method may involve extra handling—but, in this case, we are primarily interested in time and results.

When a finishing material is sprayed on a product, part of the solvents in the coat immediately begin to flash off or evaporate. This rapid evaporation, however, can only take place on the surface. Any solvent beneath the surface must slowly work it's way toward the air that will vaporize it. The rate at which the surface solvent is carried away is much faster than the replacement from beneath. The top surface glazes over, further im-

peding the drying process. It is quite evident, therefore, that a very thin coat will quickly rid itself of its solvent, whereas a heavy coat will tend to retain solvents after the initial flash drying.

The drying process is also dependent on air circulation. Every shop has certain corners where the air is "dead" and finished work placed in these areas is slow to dry.

Materials used for a rush job should be mixed somewhat thinner than the normal mixture. For each coat called for in the specifications, two or more very thin coats should be sprayed, allowing an interval of from three to five minutes between each application. The material should be sprayed just barely wet and the interval between coats should be gauged according to the relative drying speed of the material.

Tests of Two Methods Show Which Is Faster

Recently I had occasion to test this (see previous paragraph) on two identical batches of work. The finish specified was: One coat of air-drying primer, followed by two coats of lacquer-base aluminum, and finished with one coat of clear lacquer. The first batch we finished as rapidly as possible, applying one coat over the other as fast as it could be sprayed. It took about 30 minutes to spray this lot.

Then, we started the second batch. The primer being a trifle slow drying, we sprayed it in two light coats, allowing five full minutes of drying time after each coat. Then the first coat of aluminum was sprayed. Since the aluminum was very fast drying, we only waited two or three minutes between applications, and we applied three light coats instead of the specified two coats. We waited five minutes after the last coat of aluminum before spraying the first coat of clear. The clear lacquer required three operations at 5-minute intervals. The last coat of clear was thinned in the proportion of one part of lacquer to four parts of thinner, to bring out the gloss.

This second batch required about one hour to finish. At this time we examined our first batch of work; it was still soft. Half an hour later, we examined both batches. The one that had been sprayed in stages (thin coats each followed by a few minutes of drying) was hard and tight 30 minutes after the final coat. The first batch, on which the material had been sprayed in heavy coats and rushed was still not dry enough to be print proof after 1½-hours of drying.

How We Speeded Up a Baking Primer Job

In another case, a baking primer-surfacer required 1½-hours of drying at 300° F. to bake it hard enough to sand. Raising the oven temperature was not advisable, as it interferred with other work. By having the operator apply the material in four light coats instead of two heavy coats, it was discovered that the baking time could be cut to one hour. These were large cabinets, so we set up two instead of the usual one, and the sprayer merely alternated from one to the other. Thus, no time was lost except spraying time. To off-set this, a smoother coat resulted, which saved sanding time. *(To page 57)*

This method of hurrying the drying by spraying thin coats is especially feasible with air-drying synthetics. Often it cuts the drying time in half. We have all experienced the wrinkling of these materials, resulting from an attempt to force the drying in an oven. However, spraying them in light, spaced coats avoids any excessive build-up or soft undercoat, making moderate force-drying safe. The final coat should be reduced 50/50 with thinner. If oven drying is resorted to, allow at least one-half hour of air drying first.

Mis-Adjusted Spray Guns Caused Sore Arms

by Robert J. Haan

RECENTLY a large manufacturer was faced with a severe labor problem. Several production line spray operators were developing sore and swollen arms after only a few hours of work. On more than one occasion the company doctor was obliged to send the men home at mid-day.

It was recognized that this was no "feather-bedding" excuse for labor to lay down on the job. Those swollen arms were real. In desperation the company attempted to alleviate the strain on the men by designing 4-finger triggers to replace the conventional 2-finger triggers. However, the sore arms continued.

Finally, the spray equipment manufacturer was called in and told to eliminate the cause of this trouble or be faced with the possible loss of any future business with this concern.

Two basic causes were discovered. It was found that the fluid nozzle orifice of each spray gun was too large for the particular material this company was spraying. This condition, plus the fact that excessive pressure was being used on the pressure-feed paint tanks, forced the men to restrict the flow of material by turning in the fluid needle adjusting screw at the rear of the gun.

By restricting the flow of material with this adjusting screw, the men unwittingly were increasing by more than four times the spring tension, and consequently they were overexerting their forearm muscles with every pull on the trigger.

After installing the recommended nozzle orifices in these spray guns and correctly adjusting the fluid pressure, the material flow was controlled, even with the fluid needle adjustment wide open. Thus, spring tension was relieved, swollen arms disappeared and production line spraying progressed unimpaired.

K. M. Anderson named Technical Sales Representative for Zapon

A recent announcement by the Zapon Division of the Atlas Powder Co. named K. M. Anderson a Technical Sales Representative. According to J. M. Howard, General Manager of the Division at Stamford, Conn., Mr. Anderson has been in the industrial finishing field since 1937, except for two years with the 5th Amphibious Forces in New Guinea.

He started with another manufacturer of finishes, as a Sales Representative in New York City and Long Island. Then, following the war, he did free-lance sales work and advisory service to manufacturers in Connecticut and New York.

B. W. Maxey Made Controller of Glidden Company

Mr. B. W. Maxey has been advanced to the position of controller of the Glidden Co., Cleveland, Ohio. Mr. Maxey succeeds Clarence L. Cole, who retired December 31 to his Hilltop farm at Mansfield.

Mr. Maxey joined the Glidden Co. in 1941 as a traveling auditor and since 1942 has served as chief cost accountant, working in close association with his predecessor. A graduate of the University of Illinois, the new controller has had wide experience in auditing, public and general and cost accounting.

CLEANING, BONDERIZING AND PRIME COATING

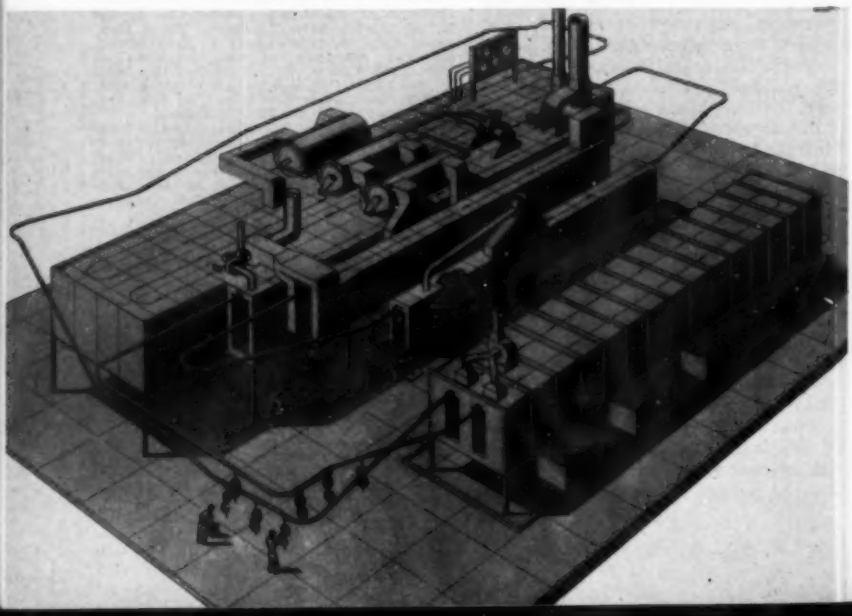
Automobile Wheels

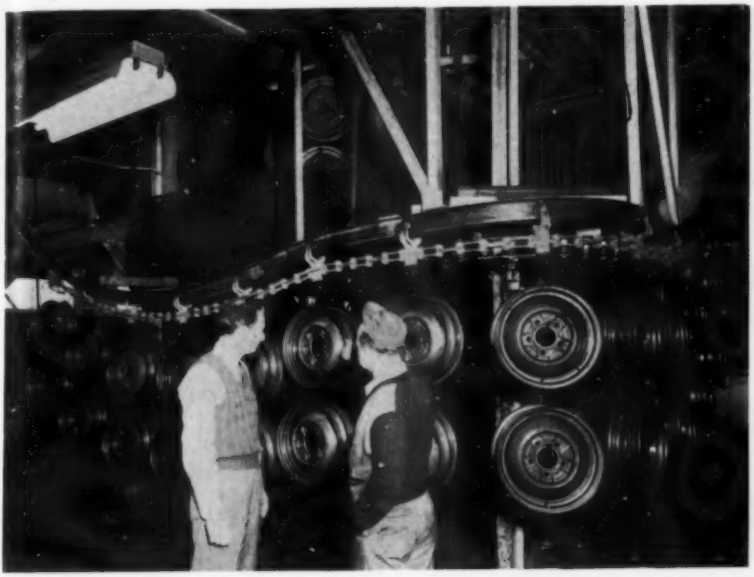
Explaining the operation of a practical mechanized setup for the cleaning, rust-proofing and painting of automobile wheels—a setup which is applicable to other metal parts and products.

By FRED M. BURT

THE AUTOMOBILE wheel fabrication, cleaning, Bonderizing, painting, oil dipping and baking lines in the Norris Stamping & Mfg. Co. plant at Los Angeles, Calif., represent close to the ultimate in practical mechanization. Starting with sheets of steel for wheel rims and spiders, each successive operation quickly moves the units-in-process toward completion and

A perspective drawing of the entire setup, looking down from above. Metal cleaning and Bonderizing unit appears at right; drying and cooling tunnels are next to large oven at left. The small unit in middle is for dip coating and draining the paint.





Ford wheels are placed on conveyor at extreme left. Conveyor moves left to right and enters the cleaning and Bonderizing section of the setup at extreme right, in background.

delivery to box cars for shipment to Southern California automobile assembly plants.

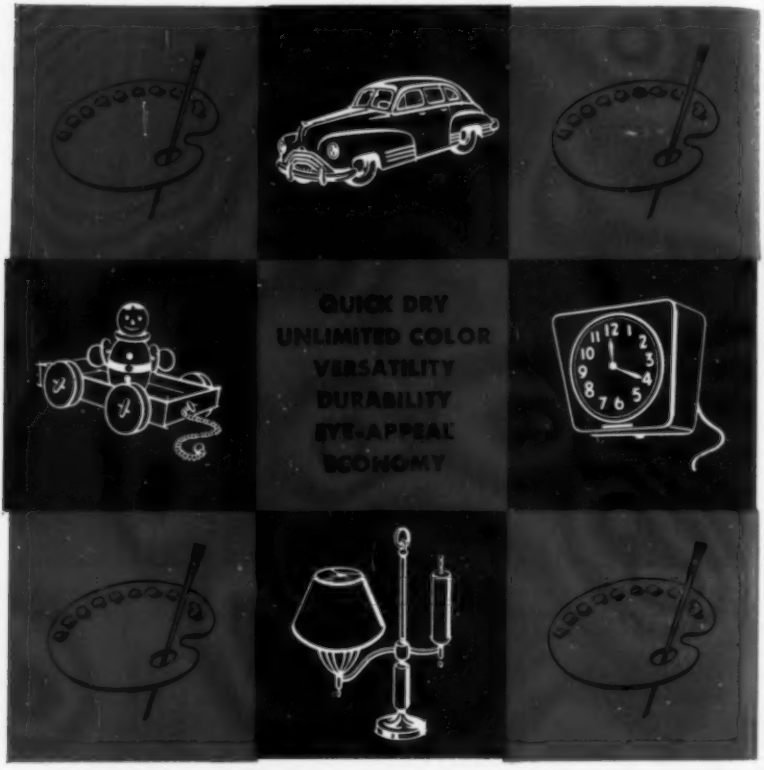
Following the metal work, which includes forming and assembly, the completed wheels enter and pass through a cleaning and surface preparation setup, which is shown in the illustration on this page. Here the heated solutions (alkaline cleaner, Bonderite, chromic acid) and rinse water are sprayed over the wheels as they move along by conveyor.

Present operations include the production of wheels for Ford and Chevrolet automobiles. Ford wheels are given a dipped coat of primer, followed by baking. Chevrolet wheels are given an oil dip which protects them from rust during shipment to and temporary storage at Chevrolet assembly plants.

Cleaning, Bonderizing, Dip Painting and Baking

To get a clear idea of what happens to Ford wheels, for example, suppose we walk over to the loading station of the 980-ft. conveyor which serves the entire cleaning, Bonderizing, dip painting and baking setup.

One man hangs wheels to the projecting prongs of hanger fixtures which are spaced 2-ft. apart



More Color with Lacquer!

Crystal-clears . . . rich opaques in every conceivable shade . . . gleaming pearl tones . . . sparkling metallic iridescents . . . you have "color unlimited" at your disposal when you finish with lacquer. *You can do it better with lacquer!*

HERCULES POWDER COMPANY

INCORPORATED

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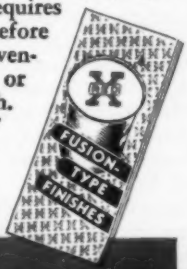
ANOTHER PROVEN FUSION-TYPE FINISHING MATERIAL

STAINS AND FILLS IN ONE OPERATION

Finish schedules that formerly required up to *20 hours* from raw wood to the rubbing operation can be reduced to about *3 hours* by using Durafill.

In addition, Durafill provides transparency, brilliance and color depth; does not raise grain; can be recoated with lacquer immediately after wiping and cleaning. Enables the lacquer to "fuse" and bind entire finish into one coat from wood fibres up. And most important—Durafill retains its color *permanently*—because it is made from non-fading dye stuffs and pigments.

Red-X Durafill promotes toughness, adhesion and durability. It can be applied by spraying, brushing, flooding or dipping. Requires no "flash-off" or "ripening" before wiping. Wipes as easily as a conventional filler . . . does not pull or become sticky. Fills pores flush. Does not "puff," "lift," "shrink" or swell when coated with sealer or lacquer.



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FREE BOOKLET

Rely on Reliance

RELIANCE VARNISH CO.
INCORPORATED

Bath by Spraying	Working Vol. Gals.	Spray Length	No. of Jets	Temperature	Pressure in lbs.	Heated by steam
Cleaner*	1690	169-in.	180	160°	17	Coils
Hot water rinse	720	72-in.	86	155°	15	Jet
Hot water rinse	720	72-in.	86	136°	13	Jet
Bonderite**	1860	239-in.	154	138°	13	Coils
Cold water rinse	480	48-in.	120			
Chromic Acid	600	60-in.	120	150°	17	Coils†

*Cee Bee No. 80, alkaline. **Spray-Bonderite 100. †With auxiliary jets.

on the conveyor chain. The conveyor is set to travel at the rate of 8-ft. per minute to give it a production capacity of 480 wheels an hour. It is driven with a variable-speed drive which permits setting the speed anywhere between 6 and 15-ft. per minute.

Temperatures are closely regulated by thermostatic controls. In addition to the loader, the only other man working on the 980-ft. conveyor is a machine operator, which checks the strength of solutions, temperatures, pressures, etc.

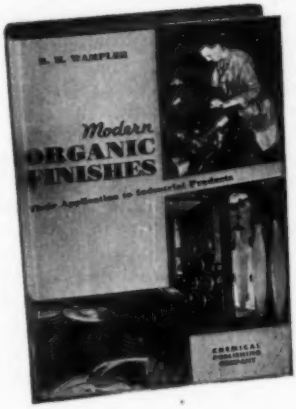
Leaving the chromic acid bath, the conveyor ascends to a higher level and travels to the 48-ft. long drying tunnel which adjoins the elevated baking oven. In this drier, a blower moves heated air in counterflow to the conveyor. The heat input has been carefully calculated to accomplish a thorough drying —but without any excess heat which would waste fuel and put an unnecessary burden on the adjoining, parallel, 42-ft. long cooling tunnel. This cooling tunnel has a blower moving cool air in counterflow to the conveyor's travel. It is designed to lower the heat of the wheels to a temperature suitable for painting.

Leaving the cooling tunnel, the conveyor makes a U turn at a high level, then drops down to enter a 36-ft. tunnel which contains the dip tank and the drain pan. This 1000-gallon tank is filled with a black dipping primer. The tank is 2-ft. wide, 18-ft. long at the top, and 10-ft. long at the bottom, with sloping ends.

Technique of Dipping; Safety Precautions

The angles at which the wheels enter the paint, and at which they are withdrawn, has been determined by careful experimentation. It was found that a happy medium —between the too quick and the too lengthy periods, the too sharp and too obtuse angles of withdrawal—as finally determined, gives a continuous uniform paint coverage without runs, sags, skipped places or heavy building up of paint. Forced air circulation over the withdrawal

MODERN ORGANIC FINISHES



Their application to Industrial Products

This book is brand new and contains 452 pages of the latest information on finishing. It describes modern finishing materials and equipment for their application, drying, conveying, etc., so that the reader may have an overall picture of modern industrial applications. Throughout, the main emphasis is on proper selection and use of materials to get the best possible finish at minimum cost.

Contents

MATERIALS: Oleoresinous and Alkyd Varnishes and Enamels; Cellulose Lacquers; Spirit Varnishes, High Integrity and Specialty Finishes; Stains, Wood and Metal Fillers, and Miscellaneous Finishing Materials.

MODERN APPLICATION METHODS:
Spray Painting; Dipping and Flocoating; Roller and Knife Coating; Tumble and Centrifugal Finishing; Special Processes.

DRYING METHODS:
The Drying Process—Air Drying; Force Drying; Baking by Convection and Radiant Heat; High-Frequency Baking.

PRODUCT HANDLING IN THE FINISHING DEPARTMENT:
Conveying Methods.

FINISHING PROCESSES:
Wooden Furniture and Cabinet Finishing; Prefinishing Wood, Plywood and Hardboard Structural Materials; Special Industrial Wood Finishing Problems; Finishing Paper, Cardboard and Fabrics; Finishing Plastics and Resin-Impregnated Wood; Cleaning and Surface-Treating Metals; Finishing Automotive and Railway Equipment; Finishing Sheet Steel Products; Finishing Iron Castings; Finishing Aircraft; Rubbing and Polishing Organic Finishes.

SOME GENERAL CONSIDERATIONS:
Good Practice in the Finishing Department; Testing and Evaluating Finishes.

The price is $8.50 and to eliminate bookkeeping we ask that cash accompany order. Sold on a money-back guarantee. Money refunded promptly and without any questions if you are not satisfied.

INDUSTRIAL FINISHING Magazine

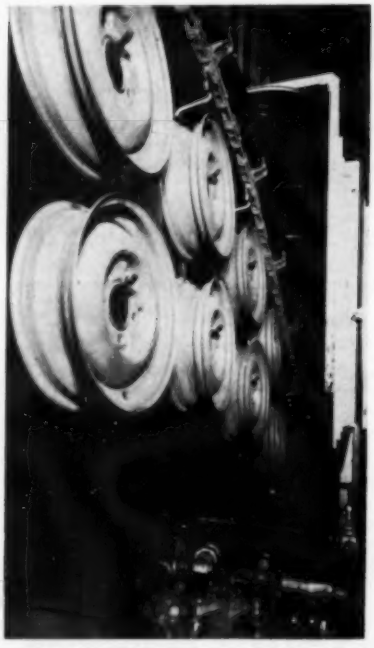
1142 North Meridian Street **Indianapolis 4, Ind.**

end of the tank serves an important objective. A pump at the entering end is used for recirculation of the paint.

In case of fire, or too high a temperature in the unit, the contents of the dip tank are automatically dumped into a subterranean tank, and a carbon dioxide fire-extinguishing gas automatically floods the tunnel.

Oven Drying Technique; Heating Facilities

Leaving the drip drain section of the tunnel, the conveyor travels a short distance at high level and then moves into the first of four passes through the baking oven. The initial heating and fuming zone is separated from the rest of the baking oven by a dividing wall except for an exit opening. High fuming tends to flatten or kill the gloss of the paint, therefore in this section of the oven there is an imput of fresh air and withdrawal of fume-laden air.



Ford wheels entering dip tank of priming paint. Notice pump in lower foreground.

The overall baking temperature is maintained at 400° F. Hot air for the baking oven and drying tunnel is produced and circulated by three heater units located on top of the baking oven. One supplies heat for the drying tunnel; one takes care of the fuming zone, and the other furnishes heat for the remainder of the baking oven. The whole system is automatic, with spark plug ignition and arrangements for a quick switch-over from one fuel to the other (natural gas or oil). The whole system shuts down automatically if anything goes wrong.

After leaving the oven, the conveyor travels at a high level across the room, to drop down for unloading. The wheels then roll into a box car for stacking.

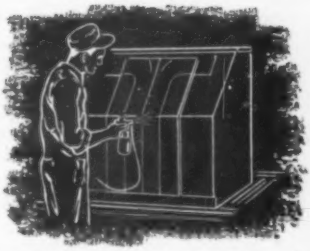
When conveyor hangers become too heavily coated with paint, they are removed, 25 to 50 at a time, and replaced with clean ones. The paint-covered hangers are placed in a steel tank containing about 200 gallons of water which is kept boiling with a steam jet. Six to eight pounds of stripper compound are added to make up a solution that cleans paint off the hangers in a few hours. *(To page 66)*

GET BETTER ACQUAINTED WITH

Vedoc

a better baked finish
for **WASHER BASES**

CHARACTERISTICS:
High resistance to soap, alkali and moisture . . . perfect matching of color with Porcelain enamel tubs . . . complete color stability . . . long wearing qualities (is chip-proof and practically impervious to scratches) . . . easily kept clean and sanitary . . . maximum protection against rust.



APPLICATION:
Only one coat is needed. Finish is sprayed on.

BAKING TIME:
20 minutes at 300° F. . . . 7 minutes with infrared. (Optional schedules are available.)

All Vedoc finishes are developed for a specific use, then slightly varied to best fit each customer's production setup. Write today for more information about these "better finishes". Also ask for your copy of the new booklet, *A Review of Product Finishing with Organic Coatings.*

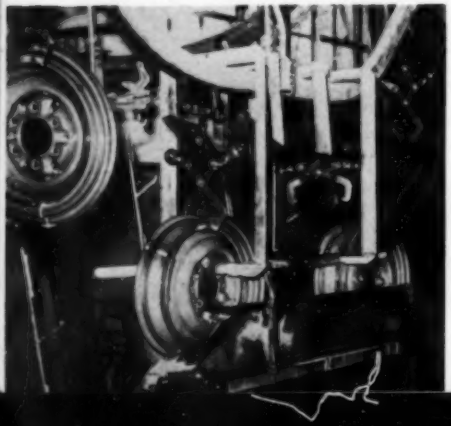
LIQUID PLASTICS DIVISION
FERRO ENAMEL CORPORATION
CLEVELAND 5, OHIO

Chevrolet Wheels Receive Coating of Oil

Chevrolet wheels, after final fabrication and inspection, roll through an oil bath beneath a steel platform in the upper part of the tank. A conveyor line carries ice-tong type grab hooks down to this platform. An inclined steel rod, bearing against the lower center parts of the grabs, starts them opening. Guides on the platform engage the hooks and keep them in a spread position until they come to the end of the short platform. At this point the successive oil-coated wheels rest against a stop. When the grabs drop over the end of the platform, they close and grasp the wheels to carry them up and across the room. Dropping down the wheels are automatically disengaged to roll into a box car for stacking. Ford and Chevrolet wheels are manufactured during alternate periods.

Author's Note: I wish to acknowledge the courtesy of Richards-Wilcox Mfg. Co. and Jervis B. Webb Conveyors for use of their photographs.

Chevrolet wheels are automatically disengaged from "ice tong" grab hooks and roll forward (to right) to enter the freight car.



More Ethyl Acetate Available

Substantial increase in production of ethyl acetate for foreign and domestic delivery, at reasonable prices by Monsanto Chemical Co. was announced recently by H. J. Heffernan, General Sales Manager of Monsanto's Merrimac Division. A byproduct of Monsanto's polyvinyl acetal operations at Springfield, Mass., ethyl acetate is refined at Merrimac headquarters in Everett. Ethyl alcohol is a product of New England Alcohol Co., a Monsanto subsidiary.

Hercules Sales Representatives in N. Y. and St. Louis

The transfer of Jordan P. Snyder, Hercules Powder Co.'s Synthetics Department technical sales representative in St. Louis, Missouri, to the department's branch office in New York City, became effective on March 1st. Dr. John Autenreith, of the company's home office in Wilmington, Del., has replaced Mr. Snyder in St. Louis.

A graduate of Penn State, Mr. Snyder joined Hercules in 1942 at the Experiment Station near Wilmington, where he spent several years in the study of technical problems pertaining to the protective coatings industry. When Synthetics Department opened a sales office in St. Louis in May, 1947, Mr. Snyder was placed in charge.

Dr. Autenreith, a graduate of City College of New York and M. I. T., joined Hercules six years ago as a research chemist at the Experiment Station. In 1944, he was transferred to Synthetics Department's technical service division in Wilmington.

Edwin D. Lowthian Joins Mixing Equipment

Edwin D. Lowthian has joined the Mixing Equipment Co., Inc., Rochester, N. Y., as senior process engineer to augment the company's field engineering service.

For five years Mr. Lowthian was associated with the Chemical Welfare Service, with special assignments at Pine Bluff Arsenal, Ark., Edgewood Arsenal and in connection with coordination and inspection of the flame thrower program.

Before his war experience, Mr. Lowthian was employed by the engineering divisions and the sales departments of nationally known manufacturers.

A graduate of Johns Hopkins University in chemical engineering, Mr. Lowthian comes to the Mixing Equipment Co. directly from a large manufacturer's process engineering section where his work included design, supervision and correlation of experimental data and results. He brings to his new connection a fund of valuable experience and knowledge that will be made available to field representatives and customers throughout the country.

Flow-Coating of Farm Machinery

by Norman H. Voigt

I SUGGEST the flow-coat system for painting certain types of heavy farm and road building machinery. Composed of angle iron, rods, springs, sprockets and brackets, these huge machines are a complex array of heterogeneous parts. This fact makes either a dipping or flow-coat system almost mandatory.

With the dip method, tanks of 1000 to 2000 gallon capacity are necessary, and it is not unusual to have 40 to 50-sq. ft. of paint area constantly exposed to the air. Management does not consider it economical to pump all of this material back into the drums at the end of the day, thus even with the usually ill-fitting lid on, skinning and loss of solvent continues for 24 hours every day.

Some plants use their dip-tank-paint—replete with steel filings, burs and grease—for six months without cleaning out the tanks. If the color, chemical and physical properties of the paint, at the time of cleaning, bears any resemblance to the original paint, it is definitely a coincidence.

To overcome deficiencies existent in the dip method, some of the farm machinery manufacturers are adopting the flow-coat system of coating. Simple installations in small industries have been in use for a number of years, but this research is the first that I know of intended to develop high production methods.

I recall the first flow-coat machine we made 14 years ago, for use on bedroom furniture. It consisted of a used ¼-h.p. motor connected directly to a rebuilt Buick water pump with special naphtha and silica-resistant packings. Manually controlled fluid hose conveyed wood filler through ordinary sprinkling can heads onto the bed surfaces. The surplus drained through a fine strainer and then funneled back into the pump for recirculation.

The present day model is still simple. Paint under pressure is forced through pipes and fluid hose and out of sprinkler heads, placed at strategic angles to thoroughly drench the bundles of odd shapes and protrusions.

The aim is to limit atomization and evaporation, and produce an adequate flow of paint in order to penetrate all of the complicated crevices. Viscosity and temperature must be checked regularly and the solvent must be replenished at intervals.

The set-up should be flexible and should allow for future expansion to accommodate changes in production. An exhaust system, incorporating both floor and ceiling outlets, is desirable because it permits control of the rate of paint drainage, as well as speed in drying.

To summarize some of the merits of flow-coating:

1) The amount of paint in use is only about 5% of that needed in the average dip tank.

2) The paint is at all times thoroughly mixed and has uniform viscosity. Even in dip tanks equipped with mechanical agitators, heavy inerts often accumulate and lie in the bottom of the tank.

3) Cleaning of the system at the end of each day or shift is easily accomplished by running a few gallons of solvent through it.

4) Little evaporation and no skinning occur because the material is pumped back into sealed drums at the end of each day or shift.

5) Continuous removal of metallic particles and dirt by strainers, at the inlet to pump, provides a cleaner finish for the product.

ZAPON

One Coat Hammered Finishes..

..stable in the container ..simple to apply

When you use this new ZAPON One Coat Hammered line—you'll get the effect you are after without having to consider a lot of "Don'ts." The application is simple and easy—one pass with a spray gun usually does it—and the product is stable in the container.

The effects you get will be beautiful and uniform. There's eye appeal in the depth of the finish—the brilliance of the colors. If properly applied it will disguise the appearance of metal imperfections, at the same time providing a smooth, dust-free surface.

ZAPON One Coat Hammered is available in lacquer or synthetic base, for either bake or air dry.

As always, ZAPON technical service will recommend the application to fit your problem. Just write or wire Zapon Division, Atlas Powder Company, Stamford, Connecticut, or North Chicago, Illinois.

ZAPON

Production Finishes

THEORY AND PRACTICE OF *Furniture Finishing*

PART III

Author's Note: In this section I will discuss wash coats, fillers and sealer coats, as used in the finishing of new wood furniture.

By ROLLIN H. WAMPLER

A WASH COAT is a very thin material applied to the wood after bleaching or staining with dye-type stains, or just before filling. It serves mainly to prevent discoloration of the wood by the oils and resins in the filler. *It is used only in conjunction with filler, never on woods that do not require filling.* In addition to keeping the color light, it preserves the clarity of the finish and aids in sanding the surface prior to filling.

The material for a wash coat usually consists of lacquer sealer or shellac at 5% to 10% solids. One part of 15% solids sealer is reduced with two parts of lacquer thinner. One part of 4 or 4½-lb. cut shellac is reduced with 5 to 8 parts of alcohol. Some finishers prefer shellac because the filler seems to work (wipe) better over it.

The wast coat is a "must" for use over water stains. It is optional over non-grain-raising stains, but it is generally used on high-grade furniture to preserve the clarity of the finish. It is applied by spraying. Only a very thin application is required. Heavy coats should be avoided. When dry (after 15 to 30 minutes drying time at room temperature) the wash coat cannot be seen. It is always sanded smooth before filling.

Sometimes a small amount of non-grain-raising stain is added to the wash coat to produce a more even or more brilliant color. Such colored wash coat is sometimes called a "toner."

Fillers Needed for Woods Having Large Pores

Some woods such as walnut, mahogany, oak, ash, chestnut, pecan, prima vera, avodire, and others have large open pores that require filling before the final coats are applied. The old method was to apply many coats of linseed oil or varnish, rubbing off the excess at each application until the pores were filled flush with the surface. Sometimes shellac or other resin

solutions were used, the finisher carefully sanding down each coat when dry. The process in each case was laborious and expensive. It would be prohibitive in these days.

Modern paste wood fillers are now used almost exclusively in production furniture finishing. They are not needed on close grained woods such as maple and poplar; but they are used on such woods as mahogany, ash and oak. Sometimes they are used on the exposed end grain of any wood to prevent topcoats from being absorbed. They may be applied on end grain under enamels to give perfect "hold-out" with one or two coats.

What Wood Filler is and How to Use It

Paste wood filler consists of inert filling pigments such as silica and asbestine, along with color pigments such as umbers, siennas, and others, properly dispersed in a vehicle consisting of drying oils, resins, driers, and thinners. The materials comes as a heavy paste weighing about 14-lbs. per gallon. For use, it is reduced with VM&P naphtha, mineral spirits, lead-free gasoline, xylol, or turpentine. For spraying, the filler is reduced in the proportion of 6 to 10-lbs. per gallon of reducer; for brushing, the ratio is 10 to 14 lbs. of paste filler to each gallon of reducer. VM&P naphtha is the preferred reducer in production furniture finishing. If the filler sets too fast for satisfactory wiping in hot weather, a portion of the naphtha should be replaced with mineral spirits, which evaporates slower.

Normal air-drying time for an application of filler is about 15 hours, although some fast-drying fillers may be safely coated in 4 to 6 hours. A force-drying time of about one hour at 130° to 140° F. is satisfactory for most fillers.

Spraying, Brushing, Padding and Wiping Filler

Some very new fillers may be coated in from 10 to 30 minutes after wiping. Special reducers prepared by the filler supplier may be used, although some fillers may be reduced with equal portions of xylol and VM&P naphtha, and some with ordinary VM & P naphtha. These fillers are especially adapted for conveyor finishing, since no drying oven is required. Even if conveyors are not used, the savings in space and time in the finishing department make fast drying fillers worth while.

Fillers are sprayed at 30 to 50-lbs. air pressure. They should be sprayed from pressure tanks equipped with agitators to prevent the heavy pigments from settling. Some finishers prefer to apply fillers by brushing; or at least to go over the tops of cases with a brush after they have been sprayed, to work the filler into the pores. Some finishers pad it in while wet with felt pads on a reciprocating rubbing or sanding machine.

A heavy, wet coat is applied. When the surface has lost its gloss and is uniformly flat (in from 2 to 10 minutes) the filler is ready to wipe. Experienced finishers use rags, cotton waste, jute, tow, or other fibrous material for the wiping. They always wipe across the grain in long, straight strokes, or go over the entire surface in circular strokes describing circles 3 or

4-in. in diameter. Then they use a clean surface of their hand rubbing pad to clean up, first across the grain, and then in light strokes with the grain.

In finishing woods that have large open pores, the filling operation is the most important one in the finishing system. If the filling is not properly done the whole system will suffer, and it will be next to impossible to get a good finish. Filler rubbers should be carefully trained and supervised. Many foreman finishers in furniture plants make it a practice to spend considerable time supervising the filler crew.

What Filler Stains Are and When They are Used

Where deep colors are required, such as 18th century mahogany, the filler may be formulated with extra large amounts of color pigments so that the separate staining operation may be dispensed with. To retain maximum clarity, oil dyes may be incorporated. These oil dyes are not light-fast, however, and may give rise to "bleeding." Both types are reduced with conventional reducers.

The best filler-stain is a new synthetic type, containing the most light-fast acid and direct dyes. It requires a special reducer, and may be coated 30 minutes after wiping. While not versatile enough for the finest furniture, it is especially suited to radio cabinets, novelty furniture, etc. No preliminary staining (except sap staining), wash coatings, or sanding are required, the material being applied directly to the raw wood.

These filler-stains are supplied in paste form, and in ready-to-use solution. The paste material is reduced in the same manner as fillers. Both types are wiped just like ordinary fillers. Drying times vary with the type of filler used. If reduced with naphtha or mineral spirits, it should air-dry in 4 to 15 hours. If the filler-stain is of the 30-minute type, it should be reduced with a special reducer supplied by the manufacturer of the filler and coated 30 minutes after wiping.

The Purpose of a Sealer Coat; Lacquer Sealers

Three types of material are available for use to seal over the stain or filler in furniture work. These three are lacquer sealer, shellac, and varnish sealer.

Lacquer sealer is almost universally used as the priming coat in the production finishing of furniture. This sealer consists of nitrocellulose (or other cellulose esters or ethers), resins and pasticizers dispersed in a suitable solvent blend and containing sanding agents (pigments) such as zinc and calcium stearates. The actual solid (non-volatile or film-forming materials) content is in the range of 12% to 21%; that is, 100-lbs. of sealer will contain from 12 to 21-lbs. of solid matter.

Lacquer sealers are applied by dipping or spraying (usually) at 40 to 50-lbs. air pressure. They are supplied ready for use, or they may require reducing with lacquer thinner. They air-dry to sand in from 30 minutes to two hours. The user is cautioned to avoid the fastest-drying, easiest-sanding sealers

Are your production costs get ou

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FOREMEN, SUPERVISORS, EXECUTIVES: *If you have a finishing problem involving costs, performance . . . or a tough technical "bug". . . write to E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington 98, Delaware.*

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because they generally contain too much sanding (lubricating) agent, causing the finish to be brittle and to lack adhesion.

In conveyor operations it is far better to force-dry the sealer for 10 to 20 minutes at 110° to 120° F., because most of the solvents are removed and the minimum of sanding agent is required. A schedule of 10 minutes for flashing (air drying), 20 minutes force-drying, and 10 minutes cooling before sanding is far better than even 60 minutes of straight air-drying, because a tougher, more adhesive sealer can be used on the force-drying schedule.

Sanding the Sealer Coat; A Tough Sealer Desirable

The coat of lacquer sealer is dry sanded by hand, or with a light power sander, using No. 5/0 to 7/0 sandpaper. The dust should be removed before recoating. It is general practice to simply blow off the surface with an air gun, or with an air gun attached to a brush. Going over the surface with a tack rag will insure a cleaner job.

Because many lacquer sealers tend to reduce the toughness and adhesion of the finish, some finishers have tried to eliminate the sealer coat. The lacquer or varnish is applied directly over the filler. However, the first coat must be sanded smooth when it is dry. This cannot be done by dry sanding because the sandpaper clogs and tends to scratch badly. Wet sanding with water or mineral spirits is satisfactory.

Another solution of the problem is to use a lacquer at 5% solids or less. It dries to sand in 30 minutes and sands easily. Such a sealer largely penetrates into the wood, leaving no surface film. For this reason care must be exercised in sanding to avoid cutting through the stain.

Special penetrating sealers based on polyvinyl butyral and other vinyl compounds have been developed to provide the utmost in adhesion without sacrificing easy sanding qualities. Although not yet widely used, they do help to produce a scratch-resistant, tough finish.

Shellac as a Sealer Coat; How to Use it Effectively

Shellac which still finds some use as a sealer on furniture, comes in three forms: orange, white (bleached), and dewaxed (clear, pale solution). Orange shellac is used where the slight discoloration is not objectionable. White shellac is used where the utmost paleness is required. Dewaxed shellac is used where the utmost paleness and clarity are necessary. The resin concentration is given in term of "cut"; that is the number of pounds of dry shellac dissolved in a gallon of alcohol. Four or 4½-lb. cuts are the most widely used concentrations.

For use as a sealer on furniture, shellac (4 or 4½-lb. cut) is reduced with an equal volume of denatured alcohol. It is best applied by spraying, although it can be brushed successfully. After drying for one to four hours it is sandpapered lightly with No. 5/0 or 6/0 sandpaper. Do not apply a heavy coat; use only enough to produce a thin, smooth film. Sometimes mixing lacquer (nitrocellulose solution) is mixed with shellac to improve the

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drying, flow and toughness. A suitable mixture is two parts of shellac, one part of mixing lacquer, and two or three parts of alcohol—all measured by volume.

Good sealers of the varnish type may be made for use under varnishes. They are applied at 30% to 35% solids, and the coating air-dries overnight or it can be force-dried for one to two hours at 150° F. Then they are dry-sanded smooth, since they contain sanding or lubricating agents to make this possible. They give excellent toughness and adhesion under varnishes and they are not expensive.

(To be continued)

Patching and Fixing May Be Reduced 90%

IN SOME wooodworking plants it seems that the cabinet assembling department glorifies in its non-cooperation with the finishing section. This non-cooperation manifests itself in many ways. Some are as follows: Sending unfinished parts into the finishing department with glue splattered in hard-to-get places; sending in merchandise that has been handled roughly, with the result that the finishing department has to do more patching and repairing; mismatching certain essential parts so that the finishing department again has to waste time trying to "even-up" those parts.

Here we see one of those hidden losses wherein one department, through indifferent or incompetent supervisory help, cancels out the efficiency of another. I have seen this happen time and again. I have also seen where the finishing department costs went up tremendously because of the resulting extra labor.

Top management should devise a way of checking up regularly to find out what goes on in and between its various departments. Be especially alert to see where extra work—particularly hand work on repairs and fixing—is under way. This fixing and repairing is costly. There should be very little of it in a well managed production factory. Perhaps investigation and some changes will result in cutting down by 25%, 50%, 75% or even by 90% or 95%. It's worth looking into.—A.B.

F. P. Hauck Becomes V. P. of Michigan Abrasive Co.

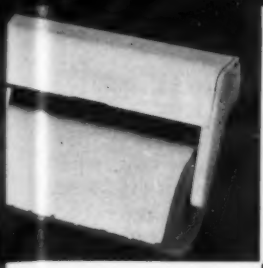
Frederick P. Hauck was elected vice president and director of Michigan Abrasive Co., Detroit, Mich., at a recent board meeting, Max C. Jones, company president, announced.

Hauck first was associated with Michigan Abrasive as a technical consultant. After several years in this capacity, he was induced to devote his full time to Michigan Abrasive Co. as Factory Manager in charge of production and research.

Paint Salesmen's Club Meets in New Haven, Conn.

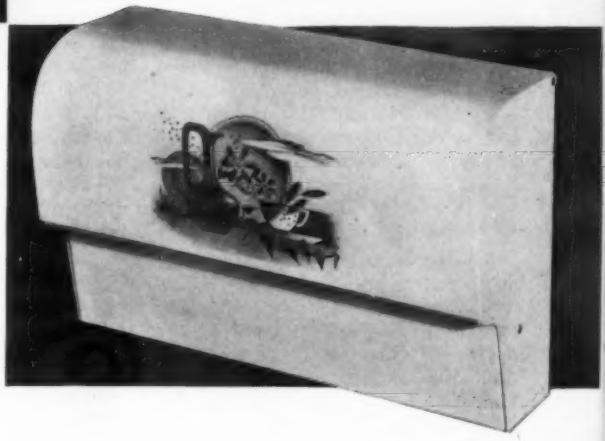
Addison H. Bissell, Jr., of Bissell Varnish Co.; Jack E. Kampner of State Paint Co.; Hugh Ryan of Pittsburgh Plate Glass Co.; and Donald P. Lynch of Devoe & Raynolds became members of the Connecticut Paint Salesmen's Club, Inc., at the club's first meeting of 1948, held in New Haven, Conn., at Hotel Taft on February 16. Robert K. Walter of Keeler & Long, Inc., newly elected president, conducted the meeting. Other officers serving for the first time included William G. Lahey of the Chalmers Chemical Co., first vice president; S. Robert Phelps of the Medusa Portland Co., second vice president; Guy A. Beardsley of Hilo Varnish Co., secretary; and Charles E. Dilsner of Pratt & Lambert, Inc., treasurer.

Believed to be the first group in the National Association of Paint Salesmen to undertake to establish permanent headquarters, the Connecticut club members discussed the report of the newly formed Building and Land Committee, headed by William H. Zeliff of Interchemical Corp. The committee is making a survey of suitable properties where the organization can hold meetings and social gatherings.



By ONNIE MANKKI

Member, Society of Industrial Designers



...en and enclosed models of ...l dispenser for wax paper ... paper towels.

A CASE HISTORY OF Product Design

A RECENT product design project handled by the author, consisted of two models of a dual dispenser for wax paper and paper towels. These dispensers are manufactured by The Metaloid Co., Cleveland, Ohio, and are distributed through hardware and department stores.

Both models provide an enclosed compartment for the wax paper. The cover serves as a cutting edge for the paper which is clamped between this cover and a grip bar. This grip bar is notched to provide ready access to the cover with the fingers for opening the compartment.

The open model provides a means of loading the paper towel roll by two slots on the rear of the supporting brackets, the towel roll being held by a wooden bar provided for the purpose. *(To p. 80)*

The enclosed model provides two simple supporting brackets for receiving the towel roll bar.

The metal is cold-rolled sheet steel of .025-in. thickness. The product is degreased and hand sprayed with a coat of white alkyd-base synthetic finish which is baked, at 350° F. for six minutes.

The unit is mounted on the wall through three concealed yet readily accessible screws.

Factors Entering Into Procedure of Designing the Products

The products were already in the development stage when the industrial designer was called into the picture. The problem involved the design of these units at the most economic manufacturing and packaging costs. A number of studies in form organization consistent with this consideration were made. These studies were evaluated at a conference during which the objective was reoriented from minimum manufacturing cost to a higher ratio of value to cost. The quality connotation of appearence in terms of impressions created on potential purchasers was an important factor.

Pertinent characteristics sought for were:

1) Harmony with all normally anticipated elements in a kitchen environment.

2) An impression of snugness to the adjoining wall surface.

3) The blending of all the elements into a single visual unity.

4) The development of the contours so that the form is emphasized through the pattern of the highlights. [to clean.

5) An impression of being easy

These objectives were accomplished by simultaneous consideration of structure, manufacturing processes and appearance. The project represents the results of close collaboration between the engineering staff of the client and the professional industrial designer.

The decorative picture which adds a colorful note of interest to the white enameled model is a stock decal decoration. It was chosen by the designer as being the most appropriate for the dispenser, being fresh and original in concept. A current prevailing condition in the sheet metal market resulted in a relatively poor grade of sheet steel being available for this product. Consequently, we have a minor imperfection in the products occurring at this point which this decal effectively camouflages.

Combinatin Stain and Fillers

By H. C. Lewis

FOR A GOOD many years someone has come up, from time to time, with a combination stain and filler that was supposed to perform staining, washcoating, sanding, filling and sealing in one operation at a tremendous saving in time, labor and material. Most of them enjoyed a brief splurge and then died a natural death due to the exaggerated claims which were made by the promoters. However research along these lines has been going along quietly behind the scenes, and several manufacturers are now offering commercially practical combination stain-fillers that are definitely economical to use, although they are not the

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magic cure-alls that the early ones were supposed to be.

The really good stain-fillers do combine the operations of staining and filling and eliminate the necessity of washcoating — and sanding of the washcoat. They have the clarity and color permanence of water stain and the non-shrinking filling properties of the conventional overnight silex fillers. However, they are much faster than the latter, as they can be recoated in three hours or less after padding in and cleaning up.

There is a wide variation in the performance of the various brands of combination stain and fillers so a thorough practical test of them should be made to determine whether they meet individual production requirements and actually produce the savings claimed without impairing the quality of the established standard of finish required on the grade of furniture being produced. Among the qualities to be observed in testing are the following:

Package Stability—They should not harden or settle out in the package, but should break up easily and reduce to a smooth consistency without lumps.

Reducibility—They should reduce easily with the recommended thinner. Some combination stain and fillers are so delicately balanced that some of the ingredients are easily thrown out of solution, and some settle out fast and hard after reduction.

Shrinkage—This should be checked carefully as some combination stain and fillers are inferior to straight wood fillers in this respect.

Grain Raising — They should be practically free from grain raising—similar to straight non-grain-raising stains in this respect.

Pore Graying — Graying in the pores should be completely absent.

Color—There should be no evidence of muddiness. The color should be as transparent, clear, permanent and rich as straight water stain.

Drying—They should dry to recoat in not more than three hours, but they should not set up so fast as to cause trouble in "padding in" and cleaning up on large surfaces.

Heaving and Bubbling—Some combination stains and fillers are not compatible with lacquer top coats and cause heaving and bubbling after the sealer has been applied and sometimes even after the application of the finishing coats.

If these various tests are made and passed successfully you will have a combination stain and filler which will show you a substantial saving in time, labor and material.

National Lacquer & Paint Co. Enlarges Plant

Mr. Paul Myers, president of the National Lacquer & Paint Co. of Chicago, recently announced the completion of the $50,000 south wing to his company's already expanded plant at 7415 S. Green St. New equipment, costing over $100,000 is being installed and will give this establishment an additional 50,000 gallon capacity.

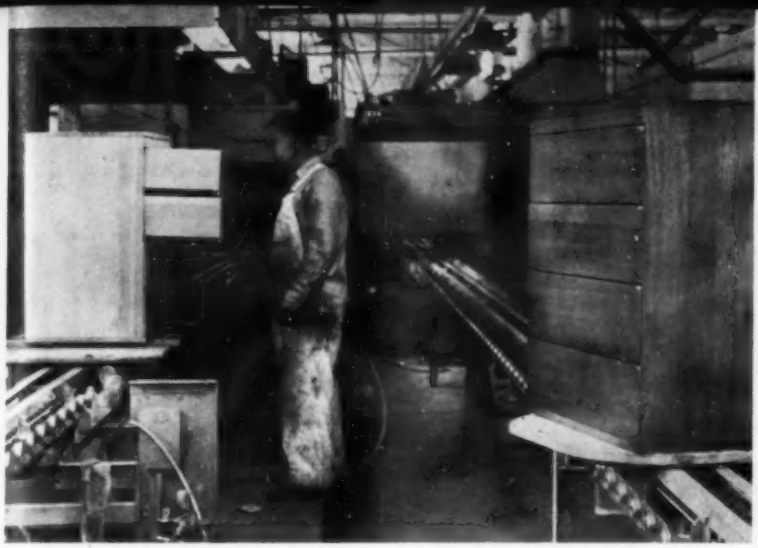
National Lacquers specializes in "made-to-order" lacquers and enamels for industrial finishing. The up-to-date laboratory is always on the alert to help industrialists with special problems and special finishes.

Southern Machinery Show in Atlanta, April 5 to 8

The Third Southern Machinery and Metals Exposition, with the newest and latest developments in equipment, supplies and machinery, will be held at the Atlanta Municipal Auditorium in Atlanta, Ga., April 5 to 8, 1948. The show will occupy three floors.

Motion pictures will be shown by many of the participating companies, and their factory engineers will be available for consultation about service and process problems. New production tools and the latest developments in manufacturing techniques will be spot-lighted in many of the exhibits.

For further information address: Michael F. Wiedl, Managing Director, Southern Machinery and Metals Exposition, 267 E. Paces Ferry Road, N.E., Atlanta 5, Ga.



At left is the first station on the chain conveyor in the finishing room. The first coat of lacquer sealer is sprayed on here, following inspection and touch-up sanding. The piece on the right has left the long drying oven.

Furniture Finished in 35 Minutes

By W. J. GRANBERG

WHEN the Forrest Furniture Mfg. Co. installed new machinery in its factory at Bellingham, Wash., and prepared to turn out new lines of modern furniture, functional in design, there remained the problem of speeding products through the finishing room. This was necessary not only in the interests of increased production, but to reduce labor costs in finishing, and also to prevent a dead-end pile-up of furniture awaiting finishing.

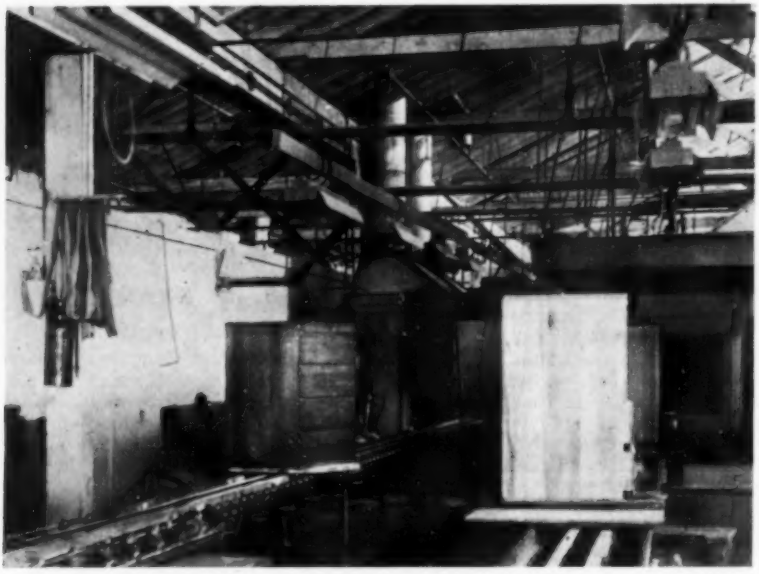
These goals have been accomplished by use of a chain conveyor which gives the finishing room an assembly line production method which reduces the time, labor and cost of furniture finishing. As a by-product of this conveyorized system, furniture moves smoothly from the factory through the finishing stages to the packing room. The savings in finishing costs, along with those achieved throughout the modern factory, have made possible the production of attractive modern bedroom, dining room and

dinette suites within a price range that is finding a ready market among the moderate-income class of consumers.

The conveyor system of finishing is simplicity itself. Articles of furniture, resting on pallets, make the entire trip through the finishing stages, including two dryings, in 35 minutes. There are 11 stations on the conveyor line, or stages through which the pieces move. These are, briefly:

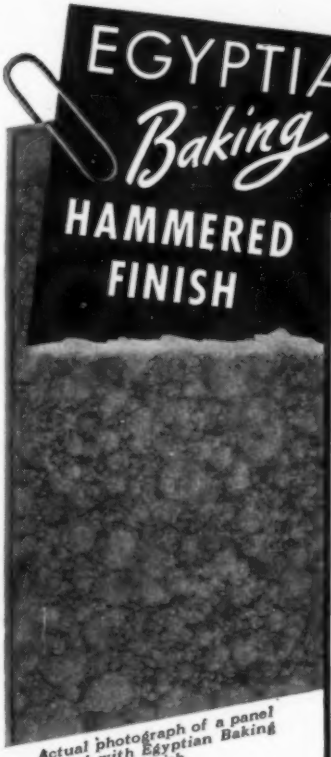
1) Inspection and touch-up sanding.
2) First coat of lacquer sealer, applied with spray gun.
3) Long heated drying oven. (Pieces take eight minutes to move through oven which is heated by steam, with controlled humidity, to temperatures ranging from 108° to 115° F.)
4) Sealer sanded.
5) Second coat of sealer lacquer.
6) Short drying oven. (This trip takes 4½ minutes.)
7) Inspection and touch-up sealer sanded.
8) Lacquer coat sprayed on.
9) Dry in open, for two minutes.
10) Final coat of lacquer.
11) To gravity conveyor where furniture is allowed to dry and await packing.

The system of conveyorized finishing is as simple as that. Joseph H. Marriott, executive vice president of the Forrest Furniture Mfg. Co., whose home office is in Inglewood, Calif., is manager of the Bellingham plant. By January 1948 he expects production will amount to $100,000 per month with about 150 employes. Alder and maple are used, with the plant receiving 30,000 to 35,000 board feet daily. [END]



Another view of conveyor lines, with spray booths and ovens in background.

EGYPTIAN *Baking* HAMMERED FINISH



Actual photograph of a panel coated with Egyptian Baking Hammered Finish.

Protects and Beautifies OZALID

OZALID Streamliner copying machine by OZALID, Division of General Aniline & Film Corp.

Egyptian Baking Hammered Finish is a hard, mar-resistant material for spray application on metal cabinets, business machine housings, lighting fixtures, hot water heaters, etc. It produces a chemical and stain resistant surface easy to clean... Egyptian method of application provides for a separate finishing of panel sections which can be assembled with excellent matching of design, color and gloss. Size of pattern may be varied as desired.

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Samples available...
Demonstrations arranged.

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Flock for South Africa

As regular subscribers to your journal, INDUSTRIAL FINISHING, we shall be obliged if you will provide us with a list of flock manufacturers, with a view of securing an agency for the Union of South Africa and Rhodesia. We have already communicated with the Claremont Waste, Rayon Processing Co., and Cellusuede Products. Earlier we were in touch with Myers-Lipman Wool Stock Co. but they inform us that they are liquidating this branch of their business.—A. E. & C. I.

Try Behr-Manning Corp., Troy, N. Y. and H. Behlen & Bro., 10 Christopher St., New York 14, N. Y. In a letter we are naming two or three others which may or many not interest you.—ED.

Roller Coating and Spool Rewinding Machines

Please send us names and addresses of companies manufacturing roller coating machines and spool rewind machines that continue to rewind at constant speed, although the reel becomes larger as more metal is put on the rewind reel.—S. E. Co.

We suggest you try Gasway Corp., 6463 N. Ravenswood, Chicago 26, Ill.—ED.

Vapor Degreasing Machine

We are interested in the vapor degreasing equipment illustrated on page 66 of the January 1948 issue of INDUSTRIAL FINISHING, the article being written by Mr. C. F. Swanson of Swanson & Co., Chicago. We addressed a communication to Swanson & Co., Enameling & Japanning, Chicago, Ill., asking them for the name and address of the manufacturer of this type of equipment, but not having their local address, the communication was returned because of insufficient address.

Would you be in position to either supply the address of Swanson & Co. or the name and address of the manufacturer of the vapor degreasing equipment?—N. S. S. Co.

According to our records, the name and address is Swanson & Co., Industrial Finishers, 3820 S. Wabash Ave., Chicago 12, Ill.—ED.

Gage to Measure Thickness of Paint Film

Reference is made to January 1948 issue, page 108, to the Interchemical gage that quickly reads thickness of wet films. We would appreciate your advising use where we can obtain a gage of this sort, and the address of the Interchemical Corp., Finishes Divn.—N. F. Co.

The Interchemical full page, 2-color advertisement appears every month on the inside cover (second cover) of every issue of INDUSTRIAL FINISHING.

Referring again to the article on page 108 of Jan. issue, if you read on to the next page 110, you will see that the gage in question "is now being made available for general use by Henry A Gardner Laboratory, Apparatus Divn., Bethesda, Md.—ED.

"Metalkoting" Process

During the past eight months we have noticed a number of requests from your readers for a "chemical plated" finish or a "spray plated" finish, such as may be used on plastics or other non-conductors. We are manufacturers of materials used in obtaining such finishes and would appreciate the opportunity of serving your readers.—Metalkote Process Co.

N. G. R. Stains

On page 76 of January 1948 issue of INDUSTRIAL FINISHING, you mention non-grain-raising stains in five colors, to be blended to produce any desired color. We would appreciate the name of the company supplying them.—K. P. Co.

Several concerns can supply what you want. In a letter we are naming concerns reasonably near you.—ED.

Flow Meter to Measure Paint Being Sprayed

Have always enjoyed the question and answer section of this magazine and believe it to be an effective method of getting information on subjects regarding products not generally available or advertised.

For some time we have been attempting

Another DRIER Job

by FERRO!

. . . for AMERICAN STOVE COMPANY • Lorain, Ohio

At American Stove, synthetic enamels (delicate pastels and whites) are now being dried by direct oil firing—*with no loss of color characteristics.* To do this job, Ferro engineers had to design a new "head" for original heaters, install a new dual-fuel (gas and oil) burner and devise a new application of "safety control" for oil firing.

This is another example of how years of research, design engineering and construction experience enable Ferro to assume undivided responsibility for ovens, driers and complete finishing systems.

FERRO ENAMEL CORPORATION

4150 East 56th Street • Cleveland 5, Ohio

PLANTS IN: CLEVELAND • NASHVILLE • LOS ANGELES

to determine who makes or sells a Paint Flow Meter to measure the amount of paint used by a spray operator on a production finishing line, for either a short period of operation or during the course of a day or more. Prior to the war we understand several meter manufacturers produced such a meter. We have seen and used these meters in production work. Any information you can supply will be appreciated.—Paint Mfr.

We have had no luck finding such a meter, even among the several manufacturers of flow meters. They can make such a meter, but apparently they feel the demand isn't sufficient to justify the expense and trouble involved to do it.

Some of our readers tell us that the best way to measure the quantity of paint or lacquer sprayed (or used in any way) over any desired period of time is to weigh it on scales that will weigh to the ounce; then convert the weight to gallons and fractions thereof. You can obtain information about weights per gallon of the material you use from your supplier. With some materials 1-oz. of material equals about 1/128th of a gallon.—ED.

From Sweden

Herewith I take the liberty of asking you, if I am permitted to reproduce, in Swedish in a Swedish journal, the article, "Special Smooth Finish on Jet Airplane", which I have read in INDUSTRIAL FINISHING, April 1947, pages 31 and 32, and which is written by Mr. Gilbert C. Close. —Karl Erikson, Stockholm, Sweden.

We are pleased to grant you permission to reprint Mr. Gilbert Close's article, but will appreciate a credit line to the effect that same is reprinted from April 1947 issue of INDUSTRIAL FINISHING Magazine, Indianapolis, U. S. A.—ED.

New Electric Eye

On page 14 of December issue we notice reference to a new electric eye capable of seeink up to 1000-ft. We would appreciate it if you could give us further information on this eye, with the name of the manufacturer or inventor from whom we can obtain additional data.—K. B.

The new electric eye was developed by engineers of General Electric Co., Schenectady, N. Y.—ED.

Spot Patching Force-Dried Wood Finishes

In the January issue of INDUSTRIAL FINISHING, we have read with interest the article on page 102, by W. T. Smith, "Again Force-Dried Wood Finishes". Mr. Smith speaks of resious materials now on the market which can be spot patched like lacquer. We are reasonably familiar with these, but the spot patching interests us, and we would like to be supplied with the names of materials, manufacturers of them, techniques and the like, for doing this spot patching.—W.Chair Co

We are referring your inquiry to Mr. Smith who is with a large manufacturer of all kinds of finishing materials.—ED.

Color Panels

Can you give us the names of one or more concerns that manufacture porcelain panels that we might use as color standard in our plant? We would like to send such a concern a wood panel of our enamel color and have them produce six porcelain panels approximately 4x6-in. in size.—R. V. Co.

Try R. C. Evans Co., 489 Fifth Ave., New York 17, N. Y.—ED.

Who Makes "Eternium"?

We wonder if you could help us secure the name of a company manufacturing a black asphalt paint called "Eternium". We understand this paint was used by the Glen L Martin plant in Baltimore, Md., on aircraft work.—C. M. W.

According to our directory, this is a product of Barrett Division, Allied Chemical & Dye Corp., 42 Rector St., New York, N. Y.—ED.

Reclaiming Overspray Paint

One of our customers who uses quite a quantity of Toluidine Red Enamel has asked us if we know of anyone who buys water-washed overspray of this material for reclamation.

We have looked over the ads in the last few issues of INDUSTRIAL FINISHING, and find no mention of this, so would you give us any information you have?—S. P. Co.

Try Meckler Chemical Corp., 3748 E. 91st St., Cleveland 5, Ohio.—ED.

From Japan

I still remember most gratefully the kindness I received at Chicago, Washington, New York and elsewhere when I attended the Annual Convention of the Federation of Paint & Varnish Production Clubs at Chicago in 1936, and traveled over your country.

We regret much, and are at a loss what to do, as we have been unable to get information about the development of your paint and varnish industry these many years. You must have made a sur-

In the West THESE PRINCIPAL TILE BOARD MANUFACTURERS use Fuller Baking Enamels

FULLER INDUSTRIAL FINISHES

BAK-A-LAC, INC.
Los Angeles

CORALTEX, INC.
Los Angeles

DURATILE OF THE WEST
Los Angeles

DURAWALL CO.
Portland

FRANK PECK SPECIALTY
Los Angeles

REX INDUSTRIES for
ALUM-A-TILE CO.
Salt Lake City

SERVICE INDUSTRIES
San Francisco

●

W. P. FULLER & CO.
INDUSTRIAL FINISHES DIVISION
SAN FRANCISCO 19, CALIFORNIA

prising advancement in their manufacture and in the ways of their use during these ten years; but we have been shut out from any information about them.

I myself am still making research in paint and varnish manufacturing and their use. Am also making some special study in preservation of fish net from rotting. I am earnestly desirous of getting acquainted, at the earliest possible time, with at least the titles and subject matter of research reports made, in these fields during and after the war. . . .

We Japanese are now thanking you Americans heartily for your kind help in foodstuff at our present crisis and also in various other respects on our way to building up a new democratic, cultural nation. I wish you could do the same in the paint and varnish industry. Any information and suggestions you could give us concerning the indoor colors and color combinations of paint and varnish would be immensely appreciated. I hope you can send me some color samples about popular colors of indoor painting of restaurants and dance halls.

I was a greedy pursuer of your publications in the pre-war days and am now praying for the earliest possible return of such happy days again. Praying for your best health, Yours most sincerely.—Shigeyoshi Oshima, Toyonaka City, near Osaka, Japan.

To Make Enamel Stick to Galvanized Metal

We would like to spray an alkyd A.D. enamel on galvanized sheet metal. For perfect adhesion we have been told the metal should be specially prepared. Can you suggest some means of obtaining this result?—A. COATINGS CORP.

The "slick" galvanized surfaces are usually treated with a mild acid solution which slightly etches the surface, thereby "conditioning" it to receive and hold any paint, enamel or lacquer coatings. Probably several concerns can supply a suitable "conditioner" for your requirements. Offhand, we think of one called "Galvaprep", which is made and sold by the Neilson Chemical Corp., 6562 Benson St., Detroit 7, Mich.—ED.

Plastic Sign Board

In the December issue of INDUSTRIAL FINISHING, on page 8, reference is made to a new type of sign board made of plastic, and the summary is credited to "DuPont News". We would appreciate it very much if you would advise us the complete address of "DuPont News".—K-M. O.

It's E. I. duPont de Nemours & Co., Inc., Public Relations Div'n., Wilmington 98, Dela.—ED.

John Forster Joins Zapon

John E. Forster has joined the Zapon Division of Atlas Powder Co. as Supervisor of the Plant Service Group at the Stamford, Conn., plant.

During the war Mr. Forster was a Captain in the Air Corps, doing corrosion control work. Later he was with another manufacturer of finishing materials. He is a graduate of Yale University, class of 1937, and active member of the N. Y. Paint and Varnish Club.

His duties, in keeping with Zapon's recently modernized facilities for the manufacture of quality production finishes, will be the supervision of plant methods, control and salvage operations at Stamford.

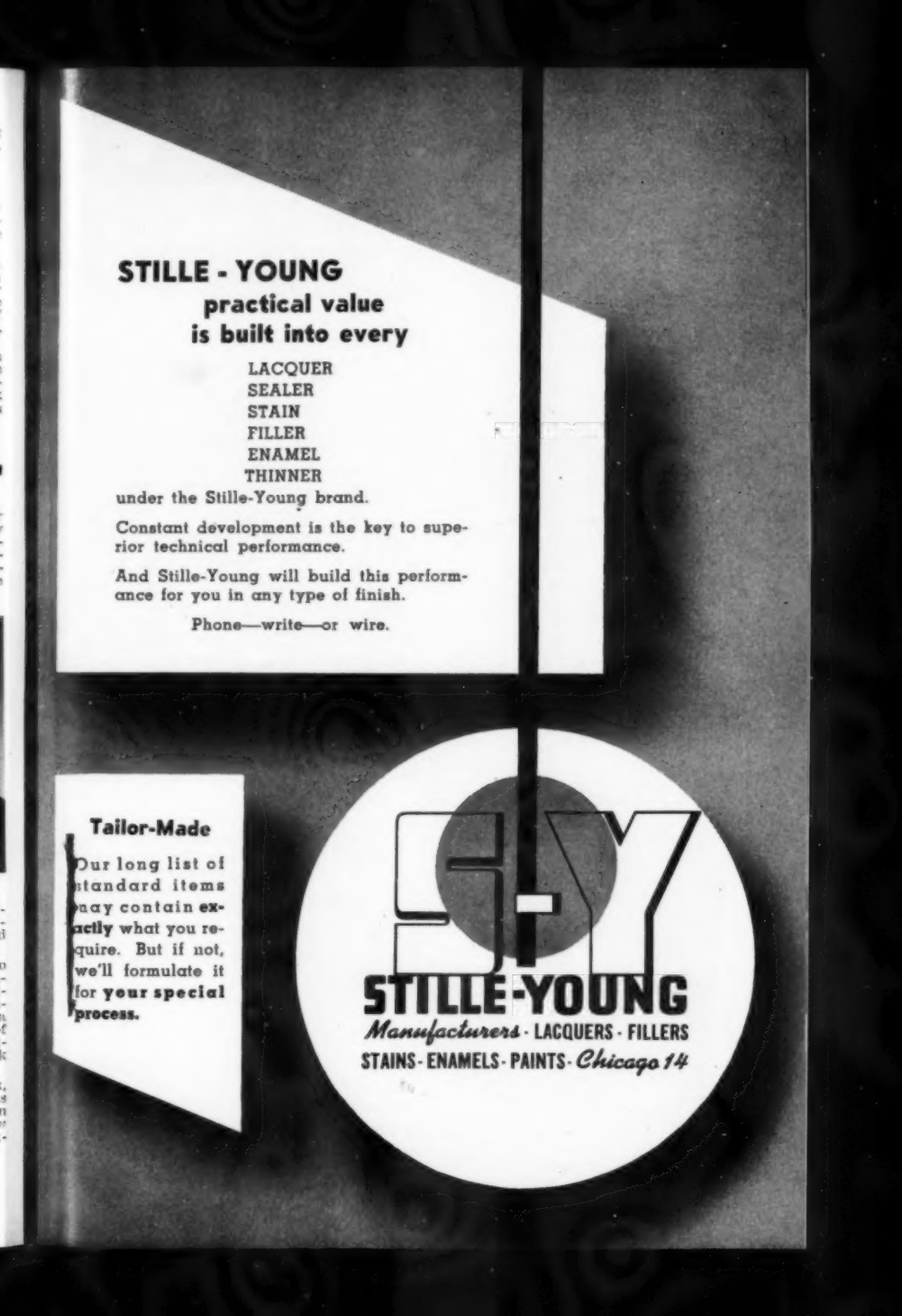
Nelson Directs Industrial Design at Technical Institute

Hans Peter Nelson, Industrial Designer of Park Ridge and Chicago, was recently appointed Director of the Industrial Design Department at the Midwestern Technical Institute, 431 S. Wabash Ave., Chicago, Ill. He has been associated in the Industrial Design field for 13 years, during which time he has styled and engineered many outstanding consumer and industrial products.

Hans P. Nelson, Industrial Designer becomes Director of the Industrial Design Dept. at the Midwestern Technical Institute

Mr. Nelson maintains his own studio and is design, color and engineering consultant to various industrial and architectural firms who are connected with finishing in one way or another. He has a B. S. Degree from Illinois Institute of Technology (Armour College of Engineering) and has taken graduate work in design at Northwestern University.

Mr. Nelson is listed in the current book, "Who's Who in American Art." Designs created on his drafting board have been featured at the Brooklyn Museum in New York and at the Century of Progress Exhibit in Chicago.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is built into every
LACQUER
SEALER
STAIN
FILLER
ENAMEL
THINNER
under the Stille-Young brand.
Constant development is the key to superior technical performance.
And Stille-Young will build this performance for you in any type of finish.
Phone—write—or wire.
Tailor-Made
Our long list of standard items may contain exactly what you require. But if not, we'll formulate it for your special process.
S-Y
STILLE-YOUNG
Manufacturers · LACQUERS · FILLERS
STAINS · ENAMELS · PAINTS · Chicago 14

COMPLE

Above: Completely Housed-In Dip Enamel Finishing System Installed by Mahon at Bay Mfg. Division of The Electric Auto-Lite Co., Bay City, Michigan. At Right Above: Interior of Drip Enclosure which also Encloses the Enamel Dip Tank. Ovens are Located Above.

Interior View Showing Control Panel, Dip Tank and Drip Enclosure at Bay Mfg. Division of The Electric Auto-Lite Co. Ovens are Located Above.

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Engineers and
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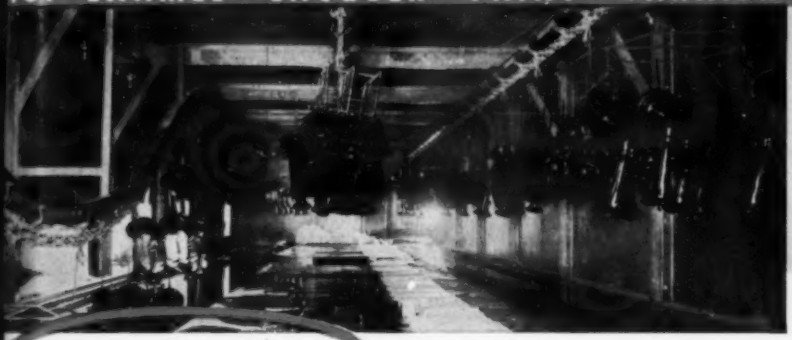
Paint Sludge R

MA

Finishing SYSTEMS

for ENAMEL • LACQUER • PAINT • VARNISH



FINISHING SYSTEM INSTALLED AND IN OPERATION, WHILE EXPANSION CONSTRUCTION LAGS DUE TO MATERIAL SHORTAGES

Bay Mfg. Division of The Electric Auto-Lite Co., new finishing and plating equipment was necessary, but plant space was not available to house the new equipment. Plant expansion construction, already under way, was delayed due to material shortages. The Mahon organization designed and installed a complete dip enamel finishing system adjacent to existing manufacturing buildings, and housed it in—the housing becoming an integral part of the system. It is so designed as to remain intact when new construction is completed—the present housing will become the finishing room enclosure in the new building. This finishing system is very compact, and consists of a six stage metal cleaning and rust proofing machine, a dry-off oven, a dip tank and drip enclosure, baking oven and conveyor—all controlled from one panel-board which groups all control switches, safety devices and recording instruments. If you are confronted with a finishing problem, at the present time, or are contemplating new finishing equipment in the near future, call on Mahon now . . . twenty-seven years of experience, constant research and pioneering development, in this highly specialized field, have endowed Mahon engineers with a wealth of technical knowledge and practical know-how not available to you elsewhere. See Mahon Insert in Sweet's Mechanical Industries File for complete information.

THE R. C. MAHON COMPANY

HOME OFFICE and PLANT, Detroit 11, Mich. . WESTERN SALES DIVISION, Chicago 4, Ill.

Engineers and Manufacturers of Complete Finishing Systems including: Metal Cleaning Machines, Rust Proofing Machines, Dry-off Ovens, Hydro-Filter Spray Booths, Filtered Air Supply Units, and Drying and Baking Ovens. Also Paint Sludge Reclaiming Units, Hydro-Foam Dust Collectors, and many other Units of Special Production Equipment.

MAHON

Special Transfer Trucks for Dipped Work

We produce many various parts of wood turnings, lacquer dipped in the usual manner, and during the various processes, they are air-brush decorated in an adjoining room.

It is necessary to transfer these parts between the dip room and the decorating room several times, and we are wondering if you know of any cart suitable for handling six or eight dipping frames or racks about 2-ft. long and 18-in. wide.

These various racks or frames contain approximately 18 sticks each, with about a dozen dipping pins on each stick. Our purpose is to avoid handling each individual rack separately, back and forth between the dip room and the decorating room. Any information you can give us as to where such carts could be secured will be appreciated.—E. Mfg. Co.

For moving dipping frames, I suggest a castered, tiered rack. If you will refer to page 56 of the January issue of INDUSTRIAL FINISHING Magazine, you will get an idea of what I which may be unnecessary in your cas have in mind. This particular rack is suspended from a conveyor line, which may be unnecessary in your case.

You could have such racks made 38-in. wide by 26-in. deep and 54-in. to 58-in. high, mounted on four ball-bearing (rubber tires optional) twin-wheel swivel casters. The racks should have adjustable slides similar to the one shown on page 56 of January issue. Assuming that your dip frames are 1½ to 1¾-in. thick, and the work extends 4-in. outside the frame, approximately 8-in. clearance would be required between frames. By placing two frames wide in the rack, each rack would hold 12 frames. In the event some turnings are longer, perhaps this would be cut to ten frames per rack.

Perhaps in or near your locality there is a metal-working shop that could build these racks for you. For your purpose, weight of product is not a factor, therefore the racks could be built of fairly light angles and strips, so long as they are reasonably rigid and strong. Your supplier can advise you on this.—P. C. BARDIN.

Pencil Finishing

We manufacture wood-cased pencils, but as yet have no satisfactory equipment, nor any good economical finish. We will welcome advice and recommendations from any of the readers. We will deem it a favor if you can put us in touch with someone who can recommend a complete layout of methods, equipment and finishing material for our pencils, on the customary lines adopted by pencil manufacturers in the U. S. A.—ACME AGENCIES, Ahmedbad 2, India.

We have had considerable experience in supplying finishes for both the pencil ferrules and the wood shaft. In most cases the ferrules are metal and must be finished with a material suitable to withstand the crimping operation. For this we have a clear

Randolph Flexible LACQUERS

ARE TOUGH, ADHESIVE . . . AND VERSATILE

Will withstand forming operations

•

Can be sprayed, dipped or baked

•

Available in clear and wide assortment of colors.

We will gladly submit technical information, or specifications for a Randolph Flexible Lacquer that will serve your particular requirements, on request. Use convenient coupon below for prompt reply.

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Carlstadt, N. J.

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Gentlemen:

We are interested in having you submit ( ) samples, ( ) technical specifications, ( ) information for:

( ) Please have your representative call.

Firm name .....

Per .....

Address .....

L.F.

pencil tip lacquer which will withstand piercing and crimping. We also wish to state that this clear lacquer has good sulphur resistance, which should be a pre-requisite for any finish coming in contact with rubber.

This clear pencil tip lacquer can be applied by spray, dip or even by centrifuge methods. If desired, it can be force dried for 15 minutes at 150° F., or it may be air dried. If the latter method is used this clear finish dries out of dust in five to ten minutes and is hard in one hour.

In order to obtain the smooth finish shown on all good pencils, the gasket or squeegee process of finishing is recommended. Naturally, this necessitates a purely automatic machine setup, and is usually limited to items such as pencils or other items of uniform small diameter.

This automatic machine has a hopper which feeds the pencils through the gasket member where the finish is applied. After the time required to coat the pencil—and this is dependent upon the thickness of film desired and the rate of speed established by the automatic machine—the finished pencil is ejected automatically onto a drying conveyor.

Depending on the selling price of the items, pencils receive from five to 12 coats of finishing material.

Many good pencils manufactured in the United States are made of kiln-dried California redwood [also of Tennessee red cedar.—Ed.]—MAAS & WALDSTEIN CO.

Your letter of December 10th to the Editor of INDUSTIAL FINISHING Magazine has been referred to our firm, inasmuch as we are manufacturers of numerous industrial finishes including finishes for wooden pencils.

The usual finishing procedure in this country, for pencils of this type, is the application of six or seven coats of a lacquer enamel, after which a top coat of a clear gloss lacquer is applied. The equipment used in the application of these finishes is a gasket type of applicator. The machine ordinarily feeds the pencils through a "well" containing the finish and as the pencil comes out with a coating of lacquer it passes through a tight fitting rubber gasket which wipes off the excess lacquer. The pencil then drops onto a moving belt where it stays for a short time, permitting the lacquer to air-dry. Lacquers of this type normally dry sufficiently hard in one minute to permit gentle handling of the pencils.

For this type of procedure we have a pencil enamel and a clear top coat pencil lacquer. These materials are both of high solids. Although we recommend the use of these materials full weight, the viscosity of the material may increase during long voyages and storage. We therefore recommend the use of our pencil enamel thinner for the reduction of these materials as required. We also wish to point out that normal lacquer thinners should not be used with these products, inasmuch as the drying time would be slowed down.

We are represented in India by Govindram Bros., 139 Meadow St., Bombay, India.—ZAPON DIV'N., Atlas Powder Co.

Wood Finish to Contact Food in Kitchen

Can you advise us what kind of coating could be used to coat maple-strip tops for food preparation tables in restaurant kitchens? It is necessary that this coating be for a protective purpose, and yet not be harmful to the food being prepared on it.—W.W.R.

A finish for any wooden surface used for the preparation of food should be

Yes YOUR product has that ever-loving sales appeal when it's coated with a more attractive finish!

To put a BETTER finish on metal in LESS TIME, at LOWER cost, standardize on UNITED'S Lacquers, Enamels, Synthetics, Thinners and Special Coatings.

WANT PROOF?

Put YOUR metal finishing requirements up to US! We'll recommend the finish that will best suit your production needs — and send you a generous working sample—all without obligation on your part.

"FIRST WITH THE FINISH"

United Lacquer Mfg. Corp.

General Offices, Laboratory, Factory: LINDEN 3, NEW JERSEY
New England Plant: EVERETT, MASSACHUSETTS

UNITED LACQUER MFG. CORP.

LACQUERS
THINNERS
SYNTHETICS
METALLIZED FINISHES
SPECIAL COATINGS

of the penetrating type. That is, the finish should lie almost wholly beneath the surface of the wood. Get from your supplier a clear varnish or lacquer that is non-toxic, odorless, and tasteless when dry. Be sure to explain what you intend to use it for.

Reduce the clear material with the proper thinner (lacquer thinner for lacquer; turpentine or mineral spirits for varnish) in the proportion of one part of clear material and one part of thinner. Swab this thin penetrating finish on the surface, allow to set up or penetrate a few minutes, and then wipe off any excess that may remain. In about eight hours sand the surface lightly and repeat application. Maple will require no more than two treatments. Softer woods will take more to properly seal the surface.

Wooden tableware such as salad bowls, etc., may be treated in a similar manner. Small objects of this nature may be dipped, with some saving of time and labor.—R. WAMPLER.

While there are many tentative suggestions that might be made for this, the problem, basically, is an old one. It is this writer's opinion that there is not a practicable organic finish film in existence for the purpose. The solid sheet of heat converted plastic, about 1/16-in. thick, which is used to some extent on restaurant and tavern tables, fused on as a single thick sheet, would be the best proposition. The plastic used here is thicker than any film that could be applied and dried in liquid form, and it has the advantage of being almost indestructible due to the preliminary heat curing of the plastic sheet used. It is expensive.

Next to that, I would use an impregnation of an oxidizing oil, such as linseed; or a hard wax, like carnauba, flowed in with a hot iron. A water-resistant saturant, such as wax or oil, which will repell soiling and yet lend itself to ready cleaning and at the same time have no surface film to eventually loosen from the surface, would seem to be the ideal remedy to this problem. I repeat, the treatment should take the form of a saturant, rather than that of a surface film. There are air-drying phenolic saturants which might do the job fairly well, but most of these are pretty strong smelling, some giving off free formaldehyde and all showing considerable tendency to discoloration in time.—W. T. SMITH.

Training a Foreman

In January 1948 issue, page 94, I noticed a question by X. Corp., asking about the advisability of training an inexperienced young man for a finishing foreman; also the answer by Mr. Raymond C. Adams of Gilman Paint and Varnish Co. No doubt Mr. Adams is sincere when he says that from four to six weeks would be sufficient time to train a new foreman or superintendent to direct the finishing problems and production of X. Corp., but I wonder. . .

I agree with Mr. Adams as to the merits of the training school in spraying technique. Also I agree as to the help of a paint chemist, but not for just one week. That isn't enough time to become sufficiently familiar with materials, solvents, thinners, tests, etc.

As for learning about finishing, I think an expert service man would be the best bet as a source of information—if X. Corp. doesn't have a reliable finisher under whom the young man could work as an understudy. A finishing service engineer runs into most of the trouble common to finishing.

If your prospective foreman could travel and spend some time with a

NEW PERIOD
Production Finishes
BAKING ENAMELS
LACQUERS SHELLAC
ENAMELS FILLERS
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PRIMERS STAINS
SYNTHETICS VARNISHES
New Period Products are Uniform . . Dependable and Attractive
SEALERS—Provides excellent body, dries fast and sands easily.
LACQUERS—CLEAR & SEMI-GLOSS. Uniform and dependable—Suitable for coating almost any surface—Provides more coverage and unusual mileage. Cuts costs.
LACQUER ENAMELS—FLAT & GLOSS. Available in a wide variety of matched colors and shades. Widely used by leading manufacturers.
SYNTHETIC ENAMELS—A durable and trouble-free finish for fast production. Built to meet the most exacting production schedules.
FILLERS and STAINS—New Period has long been famous for its Fillers and Stains. Specially formulated for mass production use. Unequalled color-matching service.
Remember New Period Finishes for Quality and Service
MANUFACTURERS OF
FINE PRODUCTION FINISHES
NEW PERIOD
Production Finishes
NEW YORK WOODFINISHERS' Supply Co.
109 IMLAY STREET BROOKLYN, N. Y.

good service man, I know he would learn a great deal about finishing. At least he would learn what to look for and how to remedy the common causes of finish failures.

Next I would suggest a few weeks of traveling with the finishing salesman to visit different types of concerns, to see how the other fellow does the job. After all the learning so far outlined, the prospective foreman still doesn't know how to do any actual finishing.

I would now apprentice him under some reliable foreman finisher. Make him an assistant and see that he fills in for any absent employee in any of the different operations, such as relief sprayer, filler, wiper, rubber, sander, patcher, etc. In this way he will learn something practical about every job in the finishing department —and he will be better prepared to direct others, with the assurance that he is right.

I am taking it for granted that X. Corp. is in the wood fabricating business. If not, the same would apply to metal finishing, but your man would have to learn about the regular and special metal finishes, ovens, baking heats and baking time, metal cleaning, rustproofing, degreasing, etc.

I am going to take exception to the statement by X. Corp. that their experience with finishing foremen has been mighty poor. I have seen instances where other companies, when hiring a superintendent, would look at the price tag first and not so much to the capabilities of the man in question. I know of a few friends and acquaintances who are finishing superintendents of large concerns, who have been with the concern a long time. Today their annual earnings are in five figures, but they are worth it because they produce without offering a lot of excuses for poor production and poor finish—and they have no interference from the office.

I know of a few others who are in and out of good jobs because they are not big enough for the positions —or perhaps the company made big promises that were not forthcoming, and there may have been a lot of interference from the office.

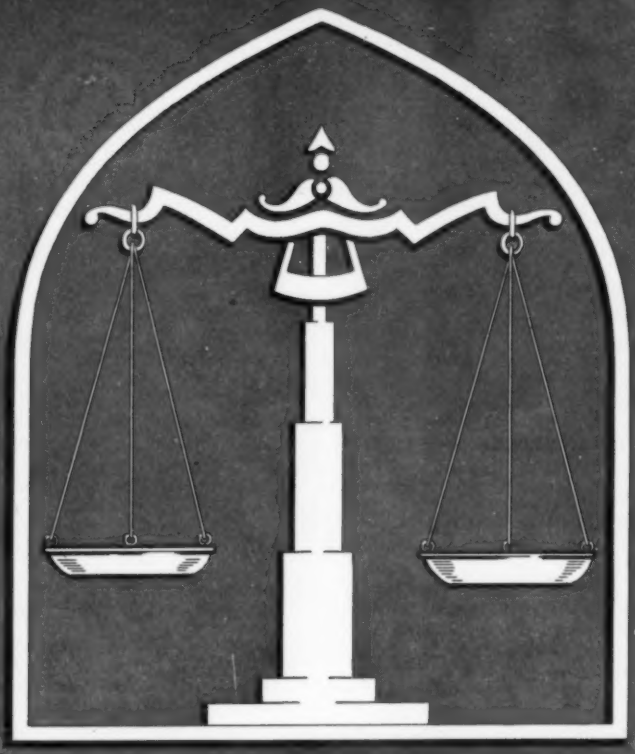
High class foremen finishers are hard to get today, and most of the good ones are earning substantial salaries. In hiring a new foreman, look at the applicant's record of production for previous employers, and his record or earnings. You can soon tell how good he is, or if he just "talks a good job." Any man with a good record of employment and high earnings with other companies must have been worth the money, or he would not have lasted for any length of time.

The reason I have brought all of this up is that it takes some give-and-take from the employer as well as from the employee. No finishing foreman can run his department effectively if the owner or manager is always interfering in his decisions.—E. HOGSTROM.

Industrial Safety Products Div. of Watson-Standard Co.

A 3-point program for safety in industry has been set up by the newly formed Industrial Safety Products Division of the Watson-Standard Co., Pittsburgh manufacturer of paints and finishes. This program includes complete cooperation with all safety organizations, extensive research directed at the creation of paints and finishes minimizing industrial hazards and wide-spread educational promotion.

The Watson-Standard Co. has long been interested in the subject of industrial safety. It has already developed and placed on the market finishes which offer protection against fire, treacherous footing, corrosion and contamination. Company officials feel that this new service to industry is only a beginning, and that their efforts will help stimulate the intensive, nation-wide drive for permanent safety. The Industrial Division was formed to spearhead the drive. Headquarters for the new division are located in the Clark Building, Pittsburgh 22, Pa.



JONES-DABNEY

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DIVISION OF DEVOE & RAYNOLDS CO., INC.

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Lacquers - Varnishes

Enamels - Stains - Fillers

RESINS & GRINDING LIQUIDS

"Syntex" Alkyds - Special Resins

Varnishes - Grinding Liquids

FACTORIES AT · LOUISVILLE · NEWARK · DETROIT

Improved Sterling Portable Electric Sander

For greater ease of operation and convenience, the Sterling Portable Electric Sander is now available with important new features and accessories. The machine is a product of Sterling Tool Products Co., 1340 N. Milwaukee Ave., Chicago 22, Ill.

New side housing fenders, now standard equipment and a basic part of all Sterling Sanders, prevents scuffing when sanding in close quarters and gives added protection to the transmission. Formerly, these fenders were accessories, but as tests and use in the field proved their value in so many types of sanding, it was decided to incorporate them as a standard part of each sander as it is manufactured.

The new Sterling Portable Electric Sander, with its new side housing fenders which are now standard equipment. These side housing fenders prevent scuffing when sanding in close quarters and give added protection to the transmission.

A new accessory for the Sterling Sander is an air scoop that gives protection in extremely wet or dusty sanding operations.

Another accessory just introduced is an auxiliary handle or knob which easily attaches to the top of the housing on the machine. This gives added support when an operator is sanding vertical or overhead surfaces for long periods of time.

"Stantite" Spraying Primer

Stantite Primer is a new type of rust-inhibiting primer and preparation coating designed for use under either air-dried or baked finishes.

This new primer has outstanding adhesion to steel, stainless steel galvanized iron (with no previous treatment), zinc, nickel, cadmium, brass, copper, aluminum (anodized or not), magnesium, glass, many molded items, and old finishing systems which are firmly attached to the base material.

One of the major features of this primer is its proven ability to prevent "rust creep"—the extension of corrosion underneath a topcoat broken by use or abuse. According to the manufacturer, metal surface preparations other than cleaning are of no added value when Stantite Primer is used.

Stantite Primer dries in a few minutes at room temperature or in one minute under a hot air blast. Baking topcoats, including two-coat systems, may be applied over it with greatly

SUPERIORITY UNIFORMITY
PYRO-CELLO-FILM
TRADE MARK

REVOLUTIONARY FINISH FOR YOUR WOOD PRODUCTS!

PYRO-CELLO-FILM is truly a super finish because it's . . .

- Absolutely Heat Resistant
- Positively Water Resistant
- Exceptionally Scratch Resistant
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- Alcohol and Acid Proof
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improved results. To date, no normal baking schedules have impaired this primer.

The adhesion of all types of topcoats to Stantite Primer is excellent. This includes air-dry or bake lacquers, alkyds, ureas and melamines, enamels, japans, paints. (The one exception so far is a certain type of vinyl finish.)

Topcoats applied over Stantite Primer, both in addition to and because of their strong bond to it, show definitely improved resistance to abuse and to tests such as the conical mandrel flexibility test.

Stantite-primed items may be stored for future finishing. Some chalking may occur during outdoor storage but no other impairment will result.

This material is a product of the Stanley Chemical Co., East Berlin, Conn.

Strippable Plastic Coating

"Copeel" is the name of a strippable plastic coating developed by Maas & Waldstein Co., manufacturers of lacquers, enamels and synthetics, 438 Riverside Ave., Newark 4, N. J. This new product has been tested and approved under actual production and service conditions.

Copeel was developed to provide an envelope-type coating for use over bare metals and finished products to protect them from rust, corrosion, marring and scratching.

In addition to this valuable property, copeel is also water resistant. It is being used to protect highly machined precision parts from rust and deterioration while in transit or in storage.

Copeel is available for hot or cold application. It can be removed from the article simply by piercing its surface and then stripping it off like peeling the skin from a banana.

New "Hammertone" Finish

A new "hammertone" type of baked-enamel finish suitable for finishing all types of metal products has been developed by the Industrial Finishes Division of Central Paint & Varnish Works, Inc., 59-69 Prospect St., Brooklyn 1, N. Y. Revolutionary in design and formulation, the new product, known as "Shelltone", is said to "pattern as it is sprayed" in one application, without the need of a prime coat and/or "spattering" thinner, and produces a smooth, uniform finish that does not collect dust.

The new product overcomes many of the uncertain human factors present in product finishing operations by eliminating "rule-of-thumb" thinning or "doctoring." Its formulation permits baking at cycles ranging from one-half hour at 225° F. to as rapidly as three minutes at 350° F. It dries quickly with a high degree of hardness on castings as well as light gauge metals, giving complete hiding over spot-welds and similar hard-to-cover markings. The new product can be applied by automatic as well as manual spray.

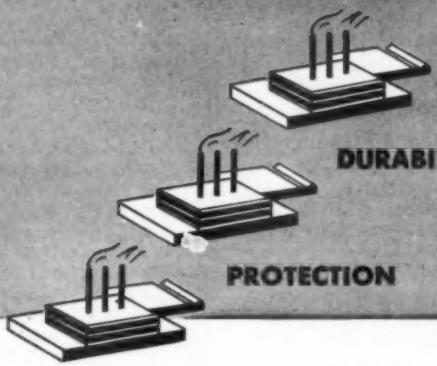
The new baked-enamel finish is available in a wide range of attractive shades designed to meet every color requirement.

Quick Connectors for Air and Paint Hose

The Tru-Flate Quick Connector, used for years on service station air hose, is finding many new uses in other fields, according to the manufacturer, Drudge Bros. Mfg. Co., 888 92nd Ave., Oakland 3, Calif.

Designed to work with ¼-in. air lines and any shop-type air tool, the quick connectors snap together or apart quickly and easily, yet provide a positive seal. Their valve action prevents air loss when apart, and

Industrial **YARNALL** Finishes



For Sixty-Three Years...

YARNALL has consistently pioneered new Industrial Finishes . . . worked with manufacturers, experimenting, developing and improving finishes for metal, wood, and plastic. If you have a tough finishing problem chances are YARNALL can help.

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WOOD AND METAL PRIMERS
YARLAST EXTERIOR ENAMEL
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EMBOSSING FINISHES
LUMINOUS FINISHES
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YARNALL PAINT COMPANY

Industrial Division PHILADELPHIA PENNSYLVANIA

hose kinks are eliminated by ball-bearing swivel action. They work equally well on lines carrying liquids such as paint and oil.

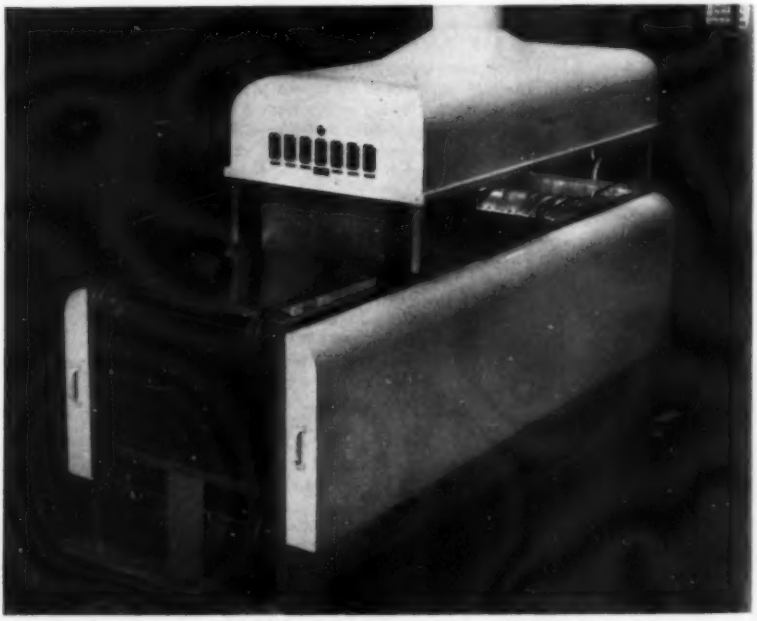
The connectors are available in various styles for many different uses.

New Automatic Finishing System—Gyra-Flow

Finishing equipment of a newly developed design is offered by George Koch Sons, Evansville 4, Ind. The Gyra-Flow automatic finishing system, here illustrated, is especially designed for the rapid coating of small parts. This versatile equipment washes, rinses, dries, dips or sprays and bakes in one continuous cycle. It is being furnished in standard sizes, having from two to 20 interchangeable operations.

The conveyor is a narrow steel band to which a series of spring-type clips are removably fastened. Each clip is designed to support one or more items through every successive process to completion. Rate of travel is constant, being spirally passed around a series of horizontal rotating drums and moving across each from left to right, or right to left.

Timing is regulated by the selective belt speed, together with a determined number of spiral turns around each drum—necessary to produce the correct number of minutes through any one of several operations. Loading and unloading may be manual or



Typical Gyra-Flow machine which is capable of doing cleaning, coating, and drying.

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fully automatic. Finished articles are returned to stations at either end, entirely without handling.

Tearless dipping is accomplished by correct flow-out of the material and the turning and inverting of the coated articles, and as developed by gyration, after passing once through a small volume, level-controlled, dip tank. Spraying may be electrostatic, or automatic, using multiples of electrically operated spray guns exhausting into a water-wash cabinet.

The coating materials may be any of the various paints, varnishes, oils, enamels, sealers, shellacs, or synthetics, of either air drying or baking types, and requiring baking heats not to exceed 500° F. The usual cleaning solvents and surface preparations are employed.

Safe Waste Receptacles

A new complete line of heavy duty Bennett Bilt Waste Receptacles specially designed and finished for outdoor use as well as indoor, which incorporates 1½-in. high, non-rusting stainless steel feet, is announced by the Bennett Mfg. Co., Inc., Alden, N. Y., builders of custom metal products since 1906.

These receptacles are fabricated from heavy 20-gauge cold-rolled steel and reinforced by rounded corners for continuous, hard, everyday use. Unobstructed exterior surface is provided by all-welded construction. Radiused corners eliminate sharp edges to reduce possible injury or damage to clothing.

Two independently hinged doors permit both to be opened simultaneously. Heavy tensioned springs keep these doors closed when not in use and eliminate the necessity of placing these receptacles on perfectly level surfaces. This closed door feature also makes the receptacles fireproof as well as sanitary. In addition, rubber bumpers assure quiet closing of both doors.

These receptacles are equipped with full size burlap bags for quick, easy removal of deposited waste. These receptacles are finished in a standard olive green and white enamel.

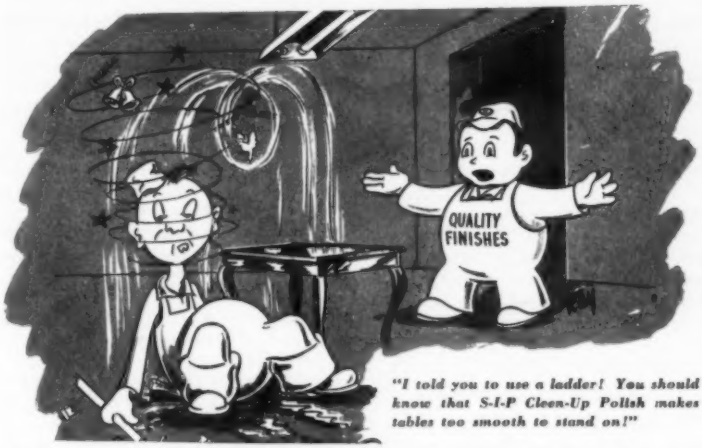
Radiant Heat Units

Industrial Radiant Heat Corp., Gladstone, N. J., announces that its Delt Calesco Super Units have many useful applications where uniformly controlled electric heat is needed over large flat or gently curved areas for drying or industrial processing. Some of these units have a flat reflective polished metal surface as large as 42-in. wide by 12-ft. long.

According to the manufacturer, these units develop infra-red rays in the long range brackets. The radiating qualities of the surface act as a reflector. This, plus the fact that an even temperature up to 700° F., plus or minus 2%, can be controlled and maintained on a surface 42-in. wide by 120-in. long in a single unit is rather unusual.

Conveyorized Cleaning, Rinsing and Drying Machine

Typical of the machinery built by the Cincinnati Cleaning & Finishing Machinery Co. of Ironton, Ohio, is the combination drum and belt conveyor washing, rinsing and drying machine illustrated here. On the extreme left can be seen the loading hopper into



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STAINS, LACQUER SEALERS AND CLEAR LACQUERS

which parts to be cleaned are fed. To the right is loading station for the belt conveyor parts. Small miscellaneous parts are cleaned in the drum, whereas the larger and more delicate parts are cleaned on the belt.

Thermostatic control is provided for both the solution and the oven.

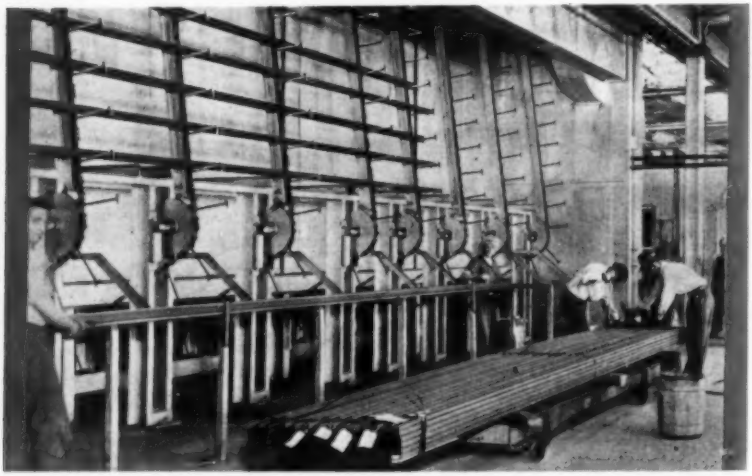
Notice the pleasing appearance and streamlined design of this machine, as well as accessibility to all fundamental parts which might require service or adjustment.

Conveyor Setups to Meet Special Requirements

To meet the lack of floor space in many plants, Ace Conveyor Industries, Inc., 134 Woodmere Ave., Detroit 9, Mich., has designed a new type of conveyor system known as a Vertical-Tower Oven Conveyor System. It provides a tower containing a Burdett equipped gas-fired oven, through which the conveyor runs, and carries work which has been painted, to be baked, or dried. The conveyor is adaptable to meet the requirements of any plant.

In a recent installation in a plant engaged in the manufacture of straight structural steel pieces, this conveyor system is used to dry the rustproofing coat of red-oxide paint in which the steel is dipped prior to entering the conveyor system. The work is carried from the dipping operation on a roller conveyor and is kicked off automatically onto an entry conveyor.

The entry conveyor is timed with the Vertical-Tower-Oven Conveyor so that, as the pieces of structural steel move forward on the entry conveyor they are picked up automatically by the extended pins on the Vertical-Tower-Oven Conveyor chain. The pieces are then carried up one side of the tower, through the baking cycle,



A 9-strand Vertical-Tower Oven Conveyor System designed by Ace Conveyor Industries

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turned over at the top, and carried down the other side. The oven is an integral part of the tower. The tower is constructed to give the required paint baking cycle. Extended pins on the nine strands of the conveyor chain handle the work through all operations in the tower.

"Permacote" Flexible Clear Top Finish for Products

Metal, wood, leather and fabric surfaces can be protected from corrosion and deterioration by a new transparent liquid "skin," according to an announcement by its manufacturer, State Chemical Corp., 1265 Broadway, New York 1, N. Y.

Called "Permacote," the new protective coating was designed for use on surfaces which require protection from moisture, acids, alkalis, alcohol, dyes, dirt, dust, etc. It can easily be applied by brush, spray or dip and forms a tough transparent coating which remains permanently flexible and is highly resistant to abuse by either physical or chemical means.

The new product is also resistant to extremes of heat or cold and will not crack or chip in spite of the expansion or contraction of the surface it protects. The coating imparts a luster to any surface it is applied to, and effectively seals in and prolongs the life of ordinary paints, lacquers and varnishes.

Spray Booth Coating

The DuBois Co., Cincinnati 3, Ohio, has developed New Pigmented Filmite, paint spray-booth masking compound. It is a ready-to-use, spray-on or brush-on liquid; dries white for maximum light reflectivity; dries to a firm, non-tacky, non-greasy surface for resistance against impact; especially suitable for clinging to overhead areas under heavy overspray load and for non-slip floors.

Filmite will not flake, crumble or dust. It is heat resistant, making it applicable for booths near ovens. This new material is completely water washable. When hosing is possible, simply wash away the dried paint overspray with hot or cold water. The overspray can also be easily peeled or scraped off the booth walls.

Silicone Finish Stands High Heat

Durable long-lasting silicone paint coatings for metal parts and products which may be subjected to temperatures of 500° to 1000° F. are announced by Midland Industrial Finishes, East Water St., Waukegan, Ill.

These coatings not only make the metal surfaces (subject to heat) more attractive, but protect and preserve them for a long time. They are in extensive use on products where the requirements call for a heat-resistant coating.

The Art of Wood Finishing

An attractive and informative book, "The Art of Wood Finishing" contains 72 pages, 6x9-in., bound substantually in stiff cloth covers of dark blue and lettered in gold. This is a practical condensed manual for finishers of fine hardwood furniture, pianos, fixtures and interior woodwork.

Preparation of surfaces, staining, bleaching, filling, varnish and lacquer coats, rubbing, polishing, touch-up and repair finishing, using varnish remover —these are a few of the subjects included. Also, enameling, gilding, glazing, leather finish, polychrome, and various decorative effects.

The characteristic natural grain and true color of more than 100 different hardwoods are shown on a full color plate about 8x12-in., with a key for quick identification of each finished hardwood illustrated. This is really valuable.

Price of the book is only $1.50. It is copyrighted and published by H. Behlen & Bro., Inc., 10-12 Christopher St., New York 14, N.Y.

You can produce on any material the following surface finishes:

FELT - SUEDE LEATHER - MOHAIR VELOUR - VELVET - CARPET

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Used in the auto, airplane, radio, electrical, phonograph, ceramics, furniture and many other industries for surfacing all sorts of materials to provide

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MOHAIR, VELOUR AND VELVET SURFACE

"Raycote"—a flock composed of uniformly cut rayon fibres to produce on any surface a pile effect such as velvet, plush, or velour. Made under U. S. Patent No. 2014947.

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"Harecote"—a flock composed of animal fibres, produces a durable carpet or rug material.

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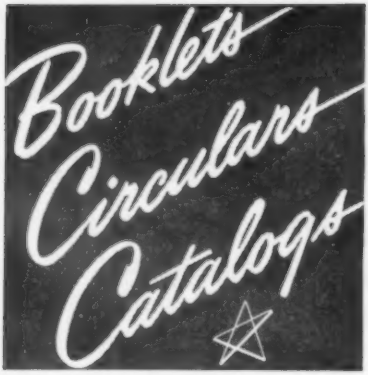

Metal Cleaning Booklet Free

The January-February Issue of Oakite News Service contains illustrated articles about cleaning methods, materials and technique. It is published by Oakite Products, Inc., 22 Thames St., New York 6, N. Y.

Cleaning and Conditioning Aluminum

A complete explanation of the use of "Deoxidine" in connection with cleaning aluminum is revealed in a Technical Service Data Sheet (P-100-31 for Dec. 1947) offered free by American Chemical Paint Co., Ambler, Penna.

Industrial Tape Bulletin Shows Uses of Tape

Industrial Review No. 8, published by Industrial Tape Corp., New Brunswick, N. J., contains 12 pages 8½x11-in. which illustrate and describe various practical uses of industrial masking tape and adhesive tape (paper, cloth and cellophane). It is interesting and informative. Free copies can be obtained by writing Industrial Tape Corp.

Finishing Equipment Bulletin Free

A 16-page illustrated bulletin (pages 8½x11-in., in two colors) shows diagrams, installation photographs and descriptive explanations of complete equipment for: 1) cleaning metal, rust proofing it and preparing the surfaces for painting; 2) spray painting and dip coating on conveyor lines; 3) air-conditioning part or all of the plant; 4) oven drying paint coatings as products are moved along by conveyor; 5) air heaters (heated by steam, oil, gas or electric current) for supplying heat to ovens used to force dry paint coatings.

Explanations of interest to metal finishers include: Why phosphate coatings are used, what they are, and how they are applied.

This new instructive bulletin should be on the desk or in the files of every man responsible for anything in connection with product painting on a volume basis. It's free. Send for a copy to Despatch Oven Co., Minneapolis 14, Minn.

Bulletin on "Liquid Envelope" Peel-off Plastic Film

Better Finishings & Coatings, Inc., 268 Doremus Ave., Newark 5, N. J., has published an illustrated informative bulletin which explains quick facts about "Liquid Envelope," a product of many uses, a few of which are: 1) Stop-off and masking compounds; 2) spray booth coating; 3) permanent clear protective coatings; 4) glare-diffusing window glass film; 5) textile and paper coatings; 6) Hermetic "Plastic Packaging"; and 7) in metal-forming operations. The material that makes this tough, flexible, transparent film can be applied by spraying, roller coating or bar coating.

Free Book on Cleaning, Finishing Copper, Brass and Bronze

The Copper & Brass Research Association has just released for distribution its long-awaited handbook on Maintenance, Cleaning, Finishing and Coloring of Copper, Brass and Bronze. Designed to answer many questions on this subject, this handbook is the result of thorough research and painstaking effort. It is the most complete work on this subject ever compiled.

Discussing these problems objectively, the new handbook offers the best available advice on the maintenance of copper and copper-base alloys which are so widely used for architectural ornamentation, building fronts and utilitarian purposes in banks, hotels, stores, office buildings and many other structures. This information will be of great assistance to engineers, building superintendents and maintenance personnel.

This handbook also has chapters on Cleaning, Finishing and Coloring which present a wealth of information that will be very interesting and useful to manufacturers of metal products, artists, architects and building contractors. Included in the chapter on coloring are several proven coloring formulas with color plates illustrating the results.

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from the bronze entrance panel on La Maison Francaise at Radio City in New York, this beautifully designed publication is a work of art—illustrated with several notable installations of copper, brass and bronze architectural work. This useful handbook is now available to those interested. Address inquiries to: Copper & Brass Research Association, 420 Lexington Avenue, New York 17, N. Y.

Circular About Economical Pickling of Steel

A 4-page illustrated circular, compiled and distributed by American Chemical Paint Co., Ambler, Penna., gives information about its product, "Rodine", which can be added to pickling baths to make them more effective and less wasteful of pickling acid and good steel.

Ovens for Industry; Free Bulletins

Two new and interesting oven bulletins, each attractively printed in three colors, show numerous illustrations with accompanying information of value to production engineers and executives. They were prepared by an oven manufacturer, The Lanly Co., 750 Prospect Ave., Cleveland, Ohio, and will be sent free to readers of this magazine. One is entitled "Lanly Finishing Ovens" and the other "Lanly Ovens for Industry". Pages 8½x11-in.

Protective Clothing for Factory Workers

A 12-page catalog section on the industrial protective clothing it merchandises has just been published by The B. F. Goodrich Co., Akron, Ohio. Copies are available upon request.

The publication pictures and describes both the rubber and the Koroseal (synthetic flexible material) acid-proof aprons, sleeve protectors, work suits, film industrial aprons and heavy duty industrial aprons.

Neoprene Notebook Free

Interested in Neoprene synthetic rubber and product made of same? The "Neoprene Notebook" is published approximately four times a year by DuPont's Rubber Chemicals Division, and contains information on laboratory results and industrial applications for neoprene products. Through the course of a year, the Neoprene Notebook contains articles dealing with many branches of industry.

The rubber Chemicals Division of E. I. duPont deNemours & Co., Inc., is located at Wilmington, Dela.

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HAMMERKRAFT is amazingly easy to apply—just two simple spray operations. The design can be made large or fine as desired by varying the thickness of the coating when applying.

HILO FRANZITE HAMMERKRAFT sets in 20 minutes, dries hard to pack in 24 hours.

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Industrial FINISHING Editorial

Future Developments

Prediction of future developments is generally based upon the assembled knowledge of past experience. Under present conditions this may prove to be a poor basis, for never before—to the knowledge of anyone living today—has there been any similar comparative circumstances or conditions. For this reason extreme care should be exercised in judging trends, or making policies that will be affected by the future.

For the same reason it is highly important that those responsible for making important decisions read all they can find about world conditions, national affairs and industrial developments. There was a time when what happened "over there" had but small effect on the average local business. Unfortunately this is not true today.

It is highly important to "read, learn and inwardly digest"; to attend group and association meetings where various views are aired. Then weigh all of these things carefully before making important decisions—and hope that it will turn out all right.

Clean-up Days to Remove All Junk

Regardless of the size of the plant or how efficiently it is managed, junk of one or more kinds is bound to accumulate around washers, ovens, dip tanks, spray booths and, in fact, around any permanently located structure or piece of equipment. It may include lengths of wire, old conveyor racks, empty cartons that do not remain empty, kegs of parts ordered but not used, boxes of sandpaper (always the wrong grit) and Joe's thermos bottle that leaks.

While this accumulation of "odds and ends" may not actually retard production, if it is allowed to continue indefinitely it certainly indicates careless housekeeping. One way to prevent this accumulation—or keep it down to a minimum—is to set aside a definite day each month for a thorough cleaning up, each foreman being held responsible for his area. You will be surprised at how little time it really takes to do this, and you will be amazed at how much better the plant will look to all who work in it or visit it.

"Stay Out! We Have Secrets"

One scarcity, for which we can well be thankful, is a sustantial decrease in so-called "hush-hush" industries. It has not been too long ago since there was a multitude of secret crafts. In some cases even management had to rely upon the special knowledge of certain employees who virtually controlled production. Little if anything was ever written about these crafts, and knowlege of the work was handed down from father to son.

Modern science has dispelled most of these secrets. Today industry welcomes visitors, and with them an exchange of ideas and information. As a rule, more information is received

from the visitor than is given. Of course, every plant has certain private data, developed through experience, experiments, and at considerable expense, to which it is entitled. But in the final analysis there is little that is really new, and that which is new doesn't long remain a secret.

Checking Prospective Workers Job Adaptability

A firm in New York offers testing service of employees for a wide variety of clerical jobs ranging from bank teller and clerk to filing and inventory clerks. This applicant testing service is designed to aid professional and business men in selecting suitable employees. A fee of $15.00 per person covers the tests, the scoring, and an individual report that interprets results of the test.

May be a good idea. It certainly would cost business more than $15.00 to spend time teaching the wrong kind of employee. This plan could be expanded, especially in heavily concentrated industrial areas, to include candidates and applicants for various factory jobs. Breaking in the wrong employee in a plant costs industry far more than it does the banker, the doctor or the department store, for here production suffers.

Steel Wastage and Steel Production

Much in the news lately is the scarcity of steel for products of all kinds, the high price of steel, the gray market in steel, the need for more scrap iron to use in making steel, and other things relating to this valuable metal.

Steel, when it was in abundance,

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SPRA-KLEEN keeps nozzles, circulating lines and reservoirs free from over-spray sludge.
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TACK RAG
Collects Dust and Dirt Too!

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was wasted in many different ways and it is still being wasted. Contributing to this waste is the inadequate protection given to many products made of steel. Allowing steel sheets, strips and plates to begin rusting before fabrication and not removing this rust or not checking its progress with suitable coatings or treatment—this has been a common but careless and wasteful practice. Or the metal may have been well cleaned and then not given effective rustproofing treatment or long-lasting rust-resistant protective coatings. Then, if or when its usage or exposure is such that a break in the paint film occurs—even in a small area—rust begins and spreads rapidly unless something effective is done promptly to check it. The end user seldom does anything about it.

Materials, equipment and methods are available for protecting steel surfaces from rust—and now, with steel more difficult to get and much higher in price too, we will probably see more effort made toward protecting and preserving what steel does become available for the manufacture of many new products.

In the meantime, other metals and even other materials are being offered to buyers as alternates for steel. Where the need for structural strength isn't so necessary, aluminum, zinc, brass and bronze are possible alternates. Finishers who have been accustomed to coating only steel parts and products will have to become familiar with the peculiarities and characteristics of these other metals in reference to cleaning, surface preparation and coating. While the nonferrous metals do not rust, they are subject to slight surface changes and more or less discoloration, under certain conditions of exposure, if they are not protected by some kind of surface coating or treatment.

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Complete Finishing Systems

Primers...Thinners
Clear and Synthetic Enamels
Ready-mixed Metallic Lacquers

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NON-INFLAMMABLE « *wax free* REMOVER »

for paint, varnish, lacquer, baked enamel, adhesives

EASY TO APPLY—NO AFTER CLEANING

I. C. D. FORMULA 9 is the standard of safety and quality . . can be sprayed or brushed . . doesn't raise grain nor discolor . . quickly removes all kinds of finishes and coatings from any surface or material . . costs less to use . . saves time, labor and material.

BRUSH CLEANER I. C. D. — Non-inflammable brush cleaner works fast . . does not injure nor loosen the bristles. Easy to use . . leaves the bristles clean as a whistle. Order a gallon can and convince yourself.

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PREPARE THE SURFACE
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TACK OFF THOSE SPECKS
Speed Up Your FINISHING PRODUCTION LINE with this Soft Tacky Cloth
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Available in GROSS LOTS thru PAINT DEALERS or from the Processor
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5 Gallon BLUE BOY Model
PAINT REJUVENATOR
Restores Paints, Lacquers, Enamel Products and Pigment Primers, to original consistency in 3 to 10 minutes without opening the can. Available for Round or Square 5-gallon cans. Explosion proof electrical equipment if desired. Also other units from ½-pint to 50-gallon drum capacity available. Originators of Paint Rejuvenating Equipment—ten years—thousands of satisfied users.
Miracle Paint Rejuvenator Co.
127 E. 9TH STREET ST. PAUL 1, MINN.

Random Comment on the Industrial Scene

(Continued from page 10)

high arc resistance and retains its high insulation value under excessive moisture conditions.

* * *

Preparing for Industrial Careers. In a recent survey by Indiana University, 100 business men stressed the need for comprehensive courses in personnel management and employee relations. Over half of them questioned stated that an employee's potential worth to his company is in direct ratio to his education.

Industry has taken the lead in the promotion of research, production, new and better equipment, but has taken many employees as it found them. Schools offer pre-medical and pre-law courses, but no pre-industrial courses. Of course, every young person cannot go to college—either because of mental capacity, personal or financial reasons—but junior and senior high schools could offer courses designed to bring about a better understanding of the problems of management and employee relations. Certainly colleges should make such courses available. It is high time for industry to raise its sights and collectively promote education for industrial careers.

* * *

Fire Detector. One Francis C. Evans recently patented a thermocouple type fire detector that should prove useful in protecting oil, solvent and finishing materials storage rooms. This device is different in that it has an optical range covering extensive areas, and has a means of penetrating obstructions between the fire and the detector.

(Continued on page 128)

The
VARNISH PRODUCTS COMPANY
Makers of . . .
CEL-U-LAK
LACQUERS and ENAMELS
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FASTER REFINISHING WITH *ELECTRO* COLD STRIPPER

▸ No more long waits while slow-acting paint removers do their work like a team of lumbering oxen. Simply dip the article into Electro Cold Stripper and—Presto!—you can see the old finish literally "pop off" before your eyes. Wash with a pressure stream of water or wipe well with rag and REFINISH IMMEDIATELY. No fuss, no waiting, no bother.

▸ Used cold. Non-inflammable. Non-injurious to hands or metal when used as directed.

▸ Removes paints, enamels, synthetics, lacquers and wrinkles in minutes—not hours. Especially effective on hard-to-remove baked-type finishes. Will not harm even precision finished aluminum, copper, brass, magnesium, zinc, steel, cast iron or their alloys in time required for removal of paint film.

Write for sample and quotations—or order 5 gallons at drum price.

ALLIED FINISHING SPECIALTIES CO.
2641 W. GRAND AVE. · CHICAGO 12, ILL.

Speaking of finishing materials storage rooms, Gilbert J. C. Andersen has patented a device for detecting leakage of inflammable fluids. Such a gadget need not be confined to storage rooms, but might be used to good advantage around a paint system to prevent financial loss, as well as eliminating a fire hazard.

PANELS

STEEL AND ALUMINUM FOR DISPLAY OF YOUR COATINGS

For laboratory and sales promotion.

•

Size 2¼" x 8" x .032.

•

Slight convex surface and channeled edges.

•

3/16" dia. hole in one end.

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Immediate delivery.

Samples and prices upon request

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Furniture Woods. Woods used in furniture exhibited at the American Furniture Mart and the Merchandising Mart, for 1948, were mahogany, walnut, oak, maple, gum, birch, beech, cherry and elm. Imported veneers included avodire, prima vera and Tigerwood.

Bleached and lighter finishes trebled the pre-war average, accounting for 16½% of the furniture shown in in all woods. Typically, light finishes were shown on about 5% of the furniture in the five pre-war years, and in 1941 the total was close to 8%.

In styles Modern is forging ahead, with a third more merchandise in this type of design than in the seven-year pre-war average.

* * *

Tall Oil. The use of tall oil as a substitute for linseed oil and rosin in the German surface coating and linoleum industries is described in a report now on sale by the Office of Technical Services, Department of Commerce (24-page report, 75 cents). The report contains formulas, manufacturing details and methods of using the finished oil.

Tall oil, a by-product from sulfate woodpulp digestion, has been used as a raw material in the surface coating and kindred industries in Germany for many years. The raw materials used were of two types: raw tall

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BRONZE PASTE • BRONZE POWDERS

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CHROME-TYPE ALUMINUM PAINT

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(Formerly the Mitchell-Mayer Co.)

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Ready NOW! for immediate delivery . . . . . .
The NEW Improved "BEAR-CAT-48"

PORTABLE COMPRESSOR

⅓ H. P., 60 Cycle Displacement, 3 Cu. Ft. This unit is perfectly balanced, eliminating all vibration. Operates at 36 lbs. pressure—Many NEW and IMPROVED features, such as;—Air Intake Filter fitted with new type cleaner and muffler. Large Air Discharge Filter with Safety-valve and Air Pressure Gauge. No better buy for the money!

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Sharpe MANUFACTURING COMPANY

1224 WALL STREET LOS ANGELES 15, CALIFORNIA

oil obtained from Sweden, and sulfate soap obtained from German cellulose factories in the form of a 50% solution of soap in water.

A table lists the types of refined tall oil and tall oil esters made available to the industry. The tall oil distillate was used in the manufacture of stand oil type esters and alkyds.

* * *

An All-Around Lamp that will illuminate, de-odorize, kill bacteria and give off ultra-violet rays, all at the same time, was demonstrated at a meeting of the American Chemical Society. The new lamp is made possible through discovery of more stable chemicals that emit ultra-violet fluorescent light. Through proper selection of fluorescent materials and special glass that transmits ultra-violet rays, any one or more of the properties in the lamp may be intensified. Such health lighting should find a definite place in industry as well as in the home and places of recreation.

New Outfit for Spraying Heavy Bodied Materials

Master Manufacturing Co., 801 W. Cabrini St., Chicago 7, Ill., anounces a complete outfit especially designed for spraying underbody coatings, sound deadeners, insulating materials, asphalt compounds, etc. The outfit includes a pressure container with pressure regulator and gauge, spray gun, hose and fittings.

The spray gun has a large head assembly for fast, smooth, free flow of material. The gun is made of non-corrosive material, with stainless steel nozzle and valve.

Martin Varnish Adds Dimancheff to Staff

Boris "Babe" Dimancheff, halfback with the Chicago Cardinals professional football champions, has joined the sales staff of Martin Varnish Co., Chicago, Ill. The addition of Dimancheff is another step in the company's plan to expand its sales organization, according to R. P. Edmonds, General Manager.

Highland Chemical Co. is Now Fleming Chemical Co.

The Highland Chemical Co. (oils, pigments, chemicals), 133 Front St., New York 5, N. Y., has changed its name to the Fleming Chemical Co., effective as of February 1, 1948. Location of the firm remains the same.

C. RAYMOND SYER
Consulting Finishing Industrial Engineer
P. O. Box 425 Westport, Conn.

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Lilly Paint Co. Directors Name Officers

At a meeting Feb. 15, the Board of Directors of Lilly Paint Products, Inc., Indianapolis, Ind., elected the following officers: Carl E. Stilwell was re-elected President; William F. Nixon was advanced to Vice President and Treasurer; and Harold K. Teague was appointed Secretary.

The three officers, together with A. G. Phelps, official of the Delco-Remy Co., Anderson, Ind.; R. Ray Banker, insurance man of Shelbyville, Ind., and W. R. Beard, of Indianapolis, comprise the Board of Directors.

Egyptian Lacquer Advances Sales Personnel

The Egyptian Lacquer Mfg. Co. announces, through its Director of Sales, Hugh C. Crawford, the appointment of Philip H. Beach as assistant sales manager, with headquarters at its sales offices in South Kearny, N. J. Mr. Beach, a veteran Egyptian of 16 years service comes to his new appointment with a wealth of experience in the sales field, having been an Egyptian representative in New England territory for many of his years with Egyptian.

Mr. Beach will be replaced in New England territory by Mr. Garrett Hiers, Jr., who formerly handled the Toledo, Ohio, territory; and Mr. Hiers' successor in Toledo will be Mr. Gordon Yost, former Purchasing Agent of the Toledo Scale Co.

J. J. Hart, Jr., Sales Manager for New W-S Division

John J. Hart, Jr., has been named sales manager of a recently formed division of The Watson-Standard Co., Pittsburgh, Penna., according to an announcement by Henry K. Watson, II. This division will service a new line of safety finish products for industry.

Mr. Hart comes to Watson-Standard from the Lake Erie Engineering Corp., where he served as district sales representative and later as assistant manager of that firm's Feller Engineering Division. A graduate of Princeton University, Hart was associated with another engineering corporation as sales engineer from 1940 to 1945.

C. & C. C. C. Opens Office in Atlanta, Ga.

Carbide and Carbon Chemicals Corp. announces the opening of a sales office in Atlanta, Ga., at 44 Broad St., N.W. This new office will make possible more effective service to users of synthetic organic chemicals in the southeast.

Ray G. Kelso has been appointed district manager for the Atlanta area. Mr. Kelso's connection with the synthetic organic chemicals industry dates from 1935, when he first became associated with C. & C. C. C. Mr. Kelso comes to Atlanta from the company's office in Philadelphia.